

US
Satellite Communications

May 8, 2002

Hughes Electronics

Solid 1Q02 Reinforces DIRECTV Turnaround

Rating Remains

Buy

Price

US\$14.35

Target Price

US\$36.50

Ticker/Code

NYSE: GMH

EBITDA/Share	1Q	2Q	3Q	4Q	FY: (Dec)
2001A	\$0.09	\$0.06	\$0.06	\$0.09	\$0.30
2002E	\$0.10A	\$0.07	\$0.14	\$0.19	\$0.51
2003E	—	—	—	—	\$1.03

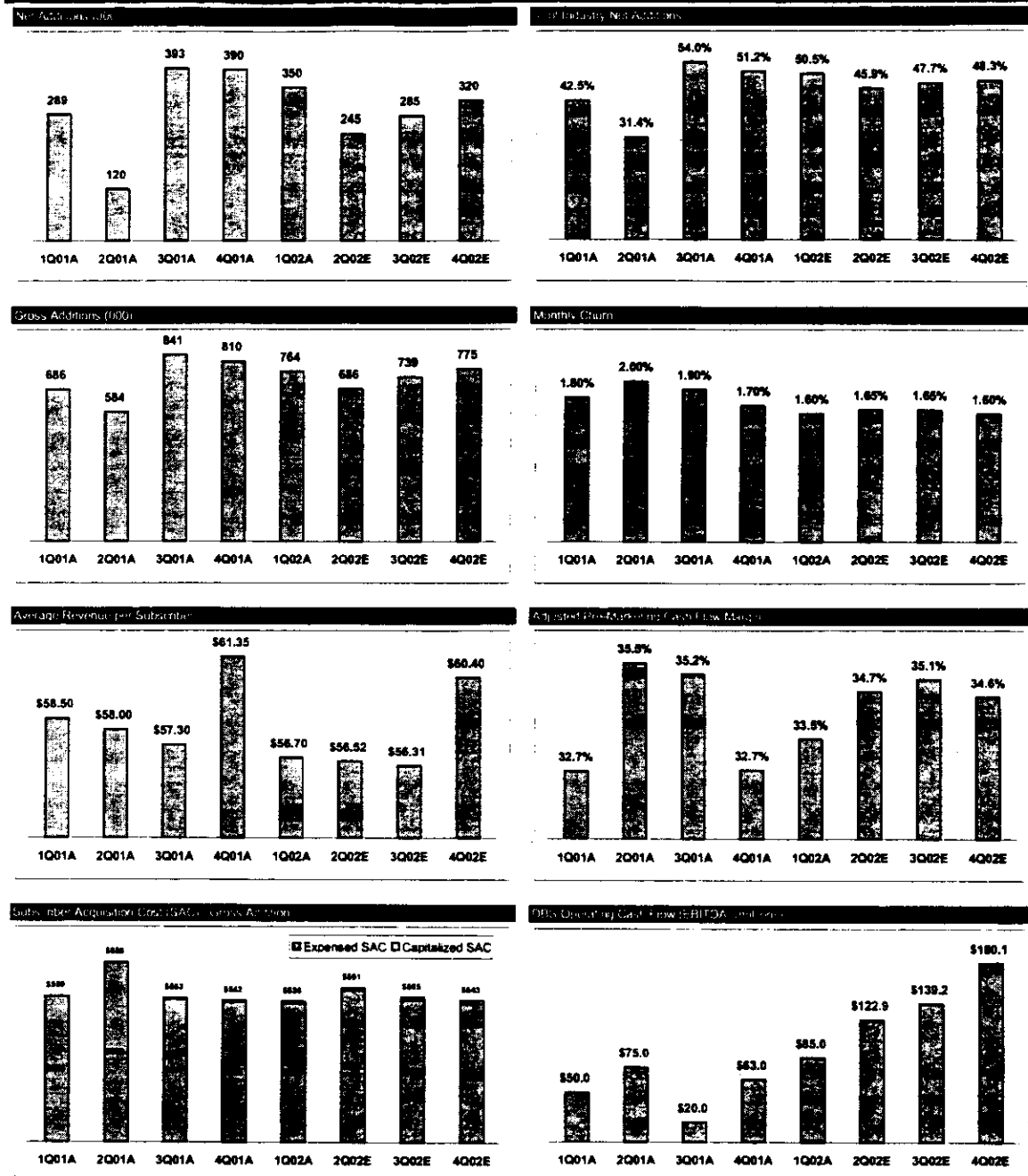
Source: Deutsche Bank Securities estimates and company information

52-Week Range:	\$28-\$12	5-Year EBITDA Growth Rate	38%
Shares Outstanding: (MM)	1,411.5	Adj. Ent. Value/03 EBITDA	12.5x
Market Cap: (MM)	\$20,524	Avg. Daily Volume: (MM)	2.3
S&P 500:	1049.49	Float: (MM)	805.4

Hughes Electronics reported solid first quarter financial results on April 15 following strong pre-announced DIRECTV subscriber results on March 21. Since its management shake-up, the company has delivered three successive quarters of dramatic turnaround improvement at DIRECTV on nearly every operating metric.

- **For the company's core DIRECTV U.S. business, on an owned-and-operated basis, first quarter results were as follows:** net subscriber additions of 350,000 (up over 20% year-over-year), subscriber churn of 1.6% per month (versus 1.8% in the prior year), subscriber acquisition costs of \$520 per gross addition (versus \$535 in the prior year), total revenue of \$1.466 billion (up 10.7% year-over-year driven by a 3% decline in ARPU to \$56.70), and operating cash flow (EBITDA) of \$85 million (up 70% from \$50 million in the prior year).
- **Management slightly raised its full year guidance at DIRECTV U.S., while lowering guidance at DIRECTV Latin America.** For DIRECTV U.S. management raised its full year subscriber net addition guidance from 1.0-1.2 million (including net additions from franchisees NRTC/Pegasus) to 1.2 million on an owned-and-operated basis (excluding NRTC/Pegasus). Further, the company raised its revenue guidance for DIRECTV U.S. from \$6.0-\$6.2 billion to approximately \$6.2 billion, while usually in contrast to higher subscriber forecasts, management maintained the lower end of its EBITDA guidance of \$525-\$575 million. Meanwhile, at DIRECTV Latin America the company lowered guidance for revenue by \$125 million and for EBITDA by \$100 million to reflect the impact of the devaluation of the Argentinean peso.
- **We view Hughes/DIRECTV's current valuation as attractive.** With reinforcing evidence of improvements in DIRECTV's operating performance following recent management changes, we view Hughes Electronics (GMH) as having an improving downside case under a failed merger scenario, while offering a significant takeout premium under a successful merger with EchoStar (given a current 22% arbitrage spread discount).

Figure 21 DIRECTV—Quarterly DBS Metrics



Source: Deutsche Bank Securities Inc. estimates and company information

Viewpoint

Hughes Electronics reported solid first quarter financial results on April 15 following strong preannounced DIRECTV subscriber results on March 21. Since its management shake-up, the company has now delivered three successive quarters of dramatic turnaround improvement at DIRECTV on nearly every operating metric.

Hughes Electronics reported first quarter revenue of \$2.04 billion, representing a 7.7% increase over the prior year

Consolidated Results—On a consolidated basis, the company reported first quarter revenue of \$2.04 billion, representing a 7.7% increase over the prior year. Operating cash flow (EBITDA) for the quarter was \$134.2 million (including both a one-time gain of \$95 million related to a favorable lawsuit resolution and a charge of \$56 million due to losses associated with a contract dispute) compared to \$113.2 million in the prior year first quarter. Management reiterated its full year 2002 consolidated revenue and EBITDA guidance of \$9.0-\$9.2 billion and \$750-\$850 million, respectively, although modest revisions were outlined for the DIRECTV U.S. and Latin America operating divisions, as discussed below. The company also reaffirmed its cash requirements for the full year of \$1.5-\$1.7 billion. For the second quarter, the company introduced consolidated revenue and EBITDA guidance of \$2.1-\$2.2 billion and \$80-\$110 million, respectively.

In its core DIRECTV operations, the company preannounced very strong first quarter subscriber numbers

DIRECTV U.S.—For its core DIRECTV operations, the company preannounced on March 21 very strong first quarter subscriber numbers of “at least” 325,000 net additions, up from original guidance of 200,000-250,000, while actually reporting 342,000 net additions. On an owned-and-operated (O&O) basis, which excludes the weakening results of DIRECTV’s franchisees NRTC/Pegasus, net additions were 350,000, which was up 21% from the prior year figure of 289,000 net adds. This represented the first quarter of a year-over-year gain of 20%-plus since the third quarter of 2000, by our estimates. Results were boosted by continuing strong gross demand, as on an O&O basis gross additions increased 7% to 764,000, while continued tight churn management resulted in a reduction to 1.6% per month in the quarter, versus 1.8% in the prior year.

Subscriber acquisition costs of \$520 per gross addition (not including \$10 for advanced set-top boxes and \$5 for leased equipment) fell for the first time in several years, by our estimates, reflecting the favorable effects of churn and management’s successful efforts to reverse previously rising manufacturing subsidies. Total DIRECTV U.S. revenue of \$1.466 billion rose 10.7% year-over-year, as subscriber growth was slightly offset by a 3% decline in ARPU to \$56.70 from \$58.50 in the prior year, resulting from a decline of pay-per-view and premium revenue and the absence of rate increases.

Operating cash flow (EBITDA) of \$85 million in the first quarter was up 70% from the prior year

Operating cash flow (EBITDA) of \$85 million in the first quarter was up 70% from \$50 million in the prior year and within management’s previous guidance of \$80-\$100 million, despite the upside surprise in subscriber growth. Overall, new initiatives implemented by new DIRECTV management in the second quarter of last year, including an overhaul of sales and distribution practices (including a requirement for a 12-month service commitment that has been applied to over 90% of new subscribers), cost-

cutting efforts and a crackdown on piracy, appear to be having a sustainable effect.

Management slightly raised its full year guidance at DIRECTV U.S. Specifically, the company raised its full year subscriber net addition guidance from 1.0-1.2 million (including roughly 100,000 net additions from franchisees NRTC/Pegasus) to 1.2 million on an owned-and-operated basis (excluding NRTC/Pegasus). Further, the company raised its revenue guidance for DIRECTV U.S. from \$6.0-\$6.2 billion to approximately \$6.2 billion, while usually in contrast to higher subscriber forecasts, management maintained the lower end of its EBITDA guidance of \$525-\$575 million.

***A successful merger
with EchoStar offers a
significant takeout
premium for GMH
shares***

Valuation/Investment Outlook—We view Hughes/DIRECTV's current valuation as attractive. With reinforcing evidence of improvements in DIRECTV's operating performance following recent management changes, we view Hughes Electronics (GMH) as having an improving downside case under a failed merger scenario, while offering a significant takeout premium under a successful merger with EchoStar (given a current 22% arbitrage spread discount). Our target price for Hughes of \$36.50 per share is based on applying the proposed merger exchange ratio of .73 DISH shares per GMH share to our EchoStar target price of \$50 per share, prompting us to reiterate our Buy rating on GMH shares.

First Quarter 2002 Review

Consolidated Results

Operating cash flow (EBITDA) for the quarter increased 18.6% to \$134.2 million

Overall, Hughes reported consolidated first quarter revenue growth of 7.7% to \$2.04 billion, slightly ahead of our estimate of 6.6% growth to \$2.02 billion. Operating cash flow (EBITDA) for the quarter increased 18.6% to \$134.2 million, which includes multiple one-time gains and charges. These include: a one-time gain of \$95 million related to the success of Hughes lawsuit filed against NASA; a \$56 million charge related to the contract dispute with General Electric Capital Corporation; a \$6 million charge related to reductions in staff at Hughes Network Systems; and a \$32 million charge at DIRECTV Latin America related to the devaluation of the Argentinean peso. Excluding the net unusual EBITDA gain in the first quarter of \$1 million, EBITDA increased 17.7% to \$133.2 million, ahead of our estimate of \$121.1 million.

Management reiterated its full year 2002 consolidated revenue and EBITDA guidance of \$9.0-\$9.2 billion and \$750-\$850 million, respectively. The company also reaffirmed its cash requirements for the full year of \$1.5-\$1.7 billion. The company introduced second quarter 2002 revenue and EBITDA guidance of \$2.1-\$2.2 billion and \$80-\$110 million, respectively. Our second quarter revenue and EBITDA estimates are \$2.17 billion and \$98 million, respectively.

DIRECTV

DIRECTV reported a strong 342,000 first quarter **net additions**, inclusive of its owned and operated subscribers as well as its NRTC franchisees (led by Pegasus), significantly ahead of our estimate and the company's March 21 preannouncement of "at least 325,000". Comparatively, the company added 340,000 in the first quarter of last year, representing flattish growth year-over-year. However, stripping out the results of the NRTC (which DIRECTV estimates lost 8,000 subscribers during the quarter), DIRECTV added 350,000 net subscribers, 21% ahead of the 289,000 reported for last year. These strong results were driven by record first quarter gross additions of 764,000 versus 716,000 last year and monthly churn of only 1.6%, versus 1.8% last year.

Demand for DIRECTV remains extremely strong

Demand for DIRECTV, and satellite television in general, remains extremely strong. Earlier this year, the company simplified its programming packages and now offers a very competitive package vis-à-vis digital cable (and even analog cable). The "Total Choice Plus" package is priced at \$39.99 and offers 130 channels of programming plus local channels. This compares to the standard basic cable package of 60-70 channels for \$40 per month and standard digital cable package that offers 150-200 channels for \$45-\$55 per month. In addition, retailers are often buying down the consumer offer by \$50 so that a one-box DIRECTV system can now be obtained for free and a two-box system costs only \$49 (contingent on the customer making a 12-month service commitment). For the second quarter, DIRECTV anticipates adding 225,000-250,000 owned and operated subscribers and 1.2 million for the full year, which is an increase from the company's previous guidance of 1.0-1.2 million, inclusive of NRTC franchises. We currently estimate the company will

add 245,000 subscribers in the second quarter and 1.2 million subscribers for 2002 on an O&O basis.

Local channels continue to significantly enhance the consumer-selling proposition, with the bulk of new subscribers continuing to come from the country's largest urban markets where it offers local service. Management indicated that about 70% of its gross additions are coming from the 41 markets where it offers local programming, and within these local markets 70% of new subscribers choose the local programming package. (Thus, approximately 50% of new subscribers are taking local programming when blended across the company's total gross additions).

DIRECTV reported total revenue of \$1.47 billion

DIRECTV reported total **revenue** of \$1.47 billion, in line with our \$1.43 billion estimate. **ARPU** was \$56.70 per month during the quarter, down 3.1% from \$58.50 in the first quarter of last year due to weakness in both the premium and pay-per-view categories. Management does not anticipate significant ARPU increases during the year and is forecasting full year ARPU of \$57-\$58 per month. For the full year, company guidance is for total revenue of \$6.2 billion, which is up from its previous estimate of \$6.0-\$6.2 million.

Pre-marketing cash flow margins were 39% in the first quarter versus 38% last year, largely the result of the company's cost-cutting initiatives that were implemented starting in the second quarter of last year. Pre-marketing cash flow margins are expected to remain relatively flat throughout 2002, as cost savings from the company's reorganization efforts are offset by increased programming costs.

Reported basic **subscriber acquisitions costs (SAC)** for the first quarter were \$520 per gross addition, versus \$560 in the fourth quarter and \$535 in the first quarter of last year. In addition, the company reported an additional \$10 per gross addition, or an estimated \$7.6 million, related to the sales of advanced set-top boxes. For 2002, we estimate basic subscriber SAC to average \$525 per gross addition with an additional \$12 per gross addition for advanced set-top boxes.

The company reported \$85 million in **EBITDA** (after further subtracting approximately \$80 million in dealer residuals, retention marketing, and existing subscriber upgrade costs), in line with guidance of \$80-\$100 million, despite better-than-expected subscriber growth, and slightly ahead our estimate of \$82.3 million.

The percentage of leased subscribers continues to be small, representing only 10% of its direct sales channel, which itself only accounts for 10% of the company's sales. With an average of 2.5 boxes per leased household, the company capitalizes approximately \$600 per new leased household, which also includes the capitalization of installation costs. We estimate that the company capitalized \$4.6 million, or approximately \$6 per total gross addition during the quarter.

DIRECTV Latin America

DIRECTV Latin America (DLA) added 32,000 net new subscribers in 1Q02

DIRECTV Latin America (DLA) added 32,000 net new subscribers in the first quarter, below our estimate and company guidance of 40,000. This was despite lower subscriber churn, which has steadily declined from an all-time high of 3.8% per month in the first quarter of 2001 to 3.2% in the just completed quarter, though this was higher than the company's expectation and our estimate of 2.5%. The company stated that it expects churn to decline during the rest of the year to bring the average for 2002 to its previously stated objective of 2.5%. Starting in March 2001, DLA introduced new promotions that incorporate higher upfront consumer costs, credit checks for all new subscribers, incentives for credit card payments, and incentives for dealers relating to lower churn.

Growth in the subscriber base was offset by the devaluation of the Argentinean and Brazilian currencies

Total DLA revenue was flat year-over-year at \$165 million, well below our estimate of \$196 million and company guidance of \$190 million as growth in the subscriber base was offset by the devaluation of the Argentinean and Brazilian currencies. Specifically, the Argentinean peso to U.S. dollar exchange rate was 1.7 in January and is now 2.7, and the company expects this to rise to 5 by the end of year. The company's operating cash flow (EBITDA) loss expanded to \$61 million from \$44 million last year, though \$32 million of this expansion was the result of the devaluation of the Argentinean peso. Excluding this, the EBITDA loss narrowed to \$29 million, which compares to our estimate and company guidance of a loss of \$20 million due to the company's churn management initiatives as well as reduced marketing and administrative costs. On the conference call, management stated it would raise prices by 14% in April and would most likely raise prices again in May, compared to rate increases of 8%-10% for the local multichannel industry, given that approximately 80% of its programming expenses are dollar-denominated.

Management revised its 2002 guidance to account for the currency devaluation

For full year 2002, management revised its guidance to account for the currency devaluation. The company now expects DIRECTV Latin America to gain 150,000-200,000 net additions, revenue of \$800-\$850 million and an EBITDA loss of \$100 million, while we have reduced our estimates to 150,000 net additions, revenue of \$784 million and an EBITDA loss of \$185 million. The company also issued second quarter guidance, incorporating the currency devaluation, net additions of 30,000, revenue of \$225-\$250 million, and an EBITDA loss of \$95 million. We expect net additions in the second quarter of 30,000, revenue of \$234 million and an EBITDA loss of \$95 million.

Hughes Network Systems (HNS)

Revenues at HNS declined 2.2% year-over-year to \$242.8 million

Revenues at HNS declined 2.2% year-over-year to \$242.8 million in the first quarter, slightly below our estimate of a 0.5% increase to \$249.5 million but within company guidance of \$225-\$250 million. The operating cash flow (EBITDA) loss for the quarter was \$33.1 million, in line with our EBITDA loss estimate of \$32 million and company guidance of a loss of \$30-\$40 million. This includes a \$6 million one-time charge related to staffing reductions, while SPACEWAY generated \$6 million in EBITDA losses.

**DIRECTV set-top
revenue grew 33% to
\$68 million**

Revenue growth was driven largely by increased DIRECTV set-top box shipments with the company shipping 430,000 units during the quarter versus 252,000 last year. This drove revenue growth of 33% to \$68 million in DIRECTV set-top revenue, compared to our estimate of \$79 million. Also driving revenue growth was a net gain of 10,000 subscribers at DIRECWAY (HNS' two-way high speed data platform, formerly known as DirecPC), bringing the total DIRECWAY subscriber base to 111,000, up from 62,000 in the prior year period, and driving an 8.1% increase in Satellite Broadband revenue to \$133 million, exactly in line with our estimates. Operating cash flow for the set-top division was \$3 million, slightly ahead of estimate of \$2.4 million, compared to an \$8 million loss in the prior year period, while the EBITDA loss for the Satellite Broadband division was \$19 million, better than our estimate of \$21 million.

Offsetting these revenue gains was a 45.3% decline to \$41 million in revenue at the Carrier division, though this was greater than our expectation of a 49.3% decline to \$38 million. This decline was expected, resulting from the effective completion of the XM Satellite and Thuraya Satellite contracts over the last year. Operating cash flow for the Carrier division declined to a loss of \$2 million in the first quarter from \$4 million in the year-ago period.

Management reiterated its guidance for full year 2002 HNS results, indicating revenue of \$1.3-\$1.4 billion and an EBITDA loss of \$50-\$75 million. The company expects the Satellite Broadband segment to be EBITDA breakeven for the year, with gains from the company's traditional Enterprise VSAT business being offset by the new consumer DIRECWAY two-way service. DIRECWAY anticipates adding between 100,000 and 200,000 net subscribers during the year. In addition, the company issued second quarter guidance for HNS that calls for revenue of \$250-\$270 million and an EBITDA loss of \$25-\$35 million. Our second quarter estimates call for \$257 million in revenue and an EBITDA loss of \$26 million.

PanAmSat

PanAmSat released its first quarter results on April 12, reporting operating lease revenue of \$201.4 million, inclusive of a \$6.4 million early termination fee resulting from a customer with financial difficulties. Excluding this item, total revenue would have been \$195.0 million, versus our estimate of \$195.5 million, implying a 2.3% year-over-year decrease. Total revenue, which includes \$5.8 million of interest from the company's sales-type leases, was \$207.1 million (or \$200.7 million excluding the one-time item).

At the end of the quarter, the company's satellite transponder utilization rate was 70%, equal to that at the end of 2001. Revenue backlog decreased slightly to \$5.72 billion versus \$5.84 billion during the quarter, as PanAmSat's approximate \$200 million quarterly revenue and a \$35 million reduction related to the early termination was only partially offset by new bookings. Pricing continues to hold up well in North America, where PanAmSat has a large presence, particularly in its cable neighborhoods. However, the company continues to see weakness in the Latin American and Pacific Rim markets.



Expenses related to the company's ongoing operations continued to show improvement

Expenses related to the company's ongoing operations continued to show improvement with operating expenses now on a \$220 million per year run-rate, down from \$237 million in the first quarter of last year, as management's back-to-basics strategy has taken hold. PanAmSat employee headcount is now at 700, down from 870 at its peak last year. During the first quarter, the PanAmSat recognized several one-time items that in aggregate offset reported expenses by \$8.9 million in a net gain. These items include a \$11.2 million expense for facilities restructuring, a \$40.1 million gain related to its PAS-7 insurance claim, a \$18.7 million loss on conversion of a sales-type lease to an operating lease, and \$1.3 million in severance costs. In addition, bad debt expenses for the first quarter totaled \$10.0 million versus \$5.9 million in the first quarter of last year.

EBITDA margins, adjusting for the termination fee and one-time expenses would have been 67.6%, down from 68.2% last year. However, if one holds bad debt expenses flat at last year's rate, margins would have shown improvement to 69.4%, in line with the company's target of 70%.

Management reaffirmed its 2002 guidance

The company introduced second quarter guidance and reaffirmed its 2002 guidance. For the second quarter, management anticipates operating lease revenues of \$193-\$203 million, total revenue of \$198-\$208 million, EBITDA of \$141-\$150 million and EPS of \$0.10-\$0.13. For the full year, the company anticipates total revenue of \$790-\$825 million, which is flat to slightly down, no new outright sales or sales-type leases, and expanding EBITDA margins to at least 70%. Driving the margin expansion are the company's cost-containment efforts, which began in the second half of 2001 and include a \$25-\$30 million reduction in operating expenses, driven by the reduction in employee headcount and a less ambitious rollout of the company's Webcast Services (formerly NET-36). PanAmSat also reiterated its full year earnings guidance of \$0.35-\$0.45 per share. For 2002, we estimate total revenue of \$815 million, which implies a year-over-year decline of 6.4%, and EBITDA of \$584 million, which implies a 1.0% increase, with margins expansion to 71.7% from 66.7%.

Figure 22 DIRECTV—Projected DBS Subscriber Model

	2000A	1001A	2001A	3001A	4001A	2001A	1002A	2002E	3002E	4002E	2002E	2003E	2004E	2005E	2006E	2007E	2008E
DBS Industry Subscribers																	
Beginning of Period	10,092	14,781	15,200	15,710	16,350	17,170	17,170	17,170	18,280	18,920	19,645	19,645	21,668	23,467	25,015	26,366	27,526
End of Period	14,781	15,200	15,710	16,350	17,170	17,170	17,170	17,170	18,280	18,920	19,645	19,645	21,668	23,467	25,015	26,366	27,526
% Change Yr. / Yr.	46.5%	35.4%	25.1%	18.8%	16.2%	16.2%	16.6%	16.6%	16.4%	15.1%	14.4%	14.4%	10.4%	8.2%	6.8%	5.4%	3.8%
Industry Internal Net Additions	3,684	600	510	783	820	820	677	555	640	725	2,597	2,043	1,776	1,549	1,351	1,160	991
Total DIRECTV Subs																	
Beginning of Period Subscribers	6,682	9,510	9,480	9,640	9,920	10,340	10,340	10,563	10,818	11,123	10,340	11,473	12,389	13,190	13,887	14,495	15,017
Gross Additions	3,361	840	745	953	910	3,448	849	786	850	696	3,360	3,256	3,336	3,413	3,489	3,553	3,613
% Change Yr. / Yr.	23.4%	11.4%	-6.4%	9.1%	-2.9%	2.6%	1.1%	5.5%	-10.8%	-1.6%	-2.0%	-3.7%	2.5%	2.3%	2.2%	1.8%	1.7%
Disconnections	(1,527)	(500)	(585)	(520)	(490)	(2,105)	(507)	(531)	(545)	(546)	(2,126)	(2,337)	(2,536)	(2,716)	(2,861)	(3,031)	(3,167)
% Monthly Churn	1.35%	1.75%	2.04%	1.82%	1.61%	1.61%	1.63%	1.65%	1.65%	1.61%	1.64%	1.63%	1.65%	1.67%	1.68%	1.71%	1.73%
Net Additions	1,834	340	160	423	420	1,343	342	255	305	350	1,222	919	800	697	608	522	446
% Change Yr. / Yr.	14.2%	-16.0%	-64.6%	6.0%	-20.3%	-26.8%	0.6%	59.4%	-27.9%	-16.7%	-8.6%	-26.6%	-13.0%	-12.9%	-12.6%	-14.1%	-14.6%
% of Industry Net Additions	49.8%	42.5%	31.4%	54.0%	51.2%	46.1%	50.5%	45.9%	47.7%	48.3%	48.2%	45.0%	46.0%	45.0%	45.0%	45.0%	45.0%
Conversions / Other	1,005	(370)	0	(143)	0	(513)	(119)	0	0	0	(119)	0	0	0	0	0	0
End of Period Total Subscribers	9,521	9,480	9,640	9,920	10,340	10,340	10,563	10,818	11,123	11,473	11,473	12,389	13,190	13,887	14,495	15,017	15,462
% Change Yr. / Yr.	42.5%	26.8%	16.9%	10.3%	8.6%	8.6%	11.4%	12.2%	12.1%	11.0%	11.0%	8.0%	6.5%	5.3%	4.4%	3.6%	3.0%
Average DIRECTV Subscribers (t)	7,879	9,310	9,560	9,709	10,130	9,677	10,362	10,681	10,871	11,268	10,836	11,831	12,780	13,536	14,191	14,756	15,240
DIRECTV Q&O Subscribers																	
Beginning of Period Subscribers	5,268	7,391	7,680	7,800	8,050	8,440	8,440	8,790	9,035	9,320	8,440	9,640	10,498	11,245	11,896	12,463	12,950
Gross Additions	2,858	686	584	841	810	2,921	764	686	739	775	2,964	2,826	2,900	2,969	3,037	3,095	3,148
% Change Yr. / Yr.	35.0%	6.0%	-14.7%	13.5%	3.2%	2.2%	11.4%	11.4%	-12.1%	-4.4%	1.5%	4.6%	2.5%	2.4%	2.3%	1.9%	1.7%
Disconnections	(1,265)	(397)	(464)	(446)	(420)	(1,729)	(414)	(441)	(454)	(455)	(1,764)	(1,970)	(2,193)	(2,319)	(2,470)	(2,607)	(2,732)
% Monthly Churn	1.59%	1.80%	2.00%	1.90%	1.70%	1.85%	1.80%	1.85%	1.85%	1.80%	1.63%	1.63%	1.65%	1.67%	1.69%	1.71%	1.73%
Net Additions	1,593	289	120	393	390	1,192	350	245	285	320	1,200	856	747	650	567	487	416
% Change Yr. / Yr.	26.3%	-20.4%	-10.1%	2.6%	-12.4%	-25.2%	21.1%	104.2%	-27.5%	-17.6%	0.7%	-28.5%	-13.0%	-12.6%	-12.8%	-14.1%	-14.6%
Conversions / Other	928	(370)	0	(143)	0	(513)	0	0	0	0	0	0	0	0	0	0	0
End of Period Q&O Subscribers	7,789	7,680	7,800	8,050	8,440	8,440	8,790	9,035	9,320	9,640	9,640	10,498	11,245	11,896	12,463	12,950	13,366
Average DBS Subscribers (t)	6,404	7,544	7,730	7,928	8,248	7,883	8,516	8,868	9,132	9,432	9,013	10,069	10,872	11,570	12,178	12,706	13,198
NRTC Franchises																	
Beginning of Period Subscribers	1,414	1,749	1,800	1,840	1,870	1,749	1,900	1,770	1,780	1,800	1,900	1,830	1,891	1,945	1,991	2,032	2,066
End of Period Subscribers	1,732	1,800	1,840	1,870	1,900	1,900	1,770	1,780	1,800	1,830	1,900	1,830	1,891	1,945	1,991	2,032	2,066
Average NRTC Franchise Subscribers	1,566	1,775	1,820	1,855	1,885	1,834	1,774	1,775	1,790	1,815	1,788	1,861	1,918	1,968	2,011	2,049	2,081
Internal Net Additions		51	40	30	30	151	(6)	10	20	30	52	61	53	46	41	35	30
PrimeStar																	
Beginning of Period Subscribers	1,354	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
End of Period Subscribers	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Average PrimeStar subscribers	514	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1) 2000 average subscribers adjusted to exclude pending subscribers																	

Source: Deutsche Bank Securities estimates and company information



Exhibit 23 DIRECTV—Projected Operating Model

	2000A	1Q01A	2Q01A	3Q01A	4Q01A	1Q02A	2Q02E	3Q02E	4Q02E	2002E	2003E	2004E	2005E	2006E	2007E	2008E
Revenue																
DIRECTV O&O	3,498.1	1,075.1	1,080.1	1,107.7	1,252.2	4,525.2	1,195.2	1,225.6	1,256.6	5,090.9	5,635.5	6,445.5	6,996.9	7,490.4	7,924.1	8,296.0
- Revenue / Avg. DIRECTV O&O Sub / Month	\$45.92	\$47.50	\$47.01	\$46.57	\$56.61	\$47.86	\$46.23	\$46.07	\$46.87	\$49.93	\$47.07	\$46.30	\$46.41	\$46.39	\$46.17	\$45.54
- % Change Year-to-Year	...	10.9%	7.9%	6.6%	-0.6%	5.4%	-2.2%	-2.0%	-1.5%	-1.3%	4.9%	2.6%	2.3%	1.7%	1.4%	1.1%
NRIC Franchise Fees	41.0	11.2	11.4	11.5	12.2	45.3	12.2	12.1	12.1	49.3	52.6	55.5	56.1	56.4	56.4	56.4
- Revenue / Avg. NRIC Sub / Month	\$43.82	\$42.19	\$41.69	\$41.17	\$43.94	\$42.04	\$42.04	\$41.58	\$41.52	\$44.95	\$47.14	\$46.23	\$46.19	\$46.13	\$46.13	\$45.29
- Franchise Fee	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
Premium Programming	8,453.3	2,317.6	2,315.3	2,433.6	2,535.5	9,765.5	2,584.6	2,600.0	2,733.9	10,011.5	11,001.5	12,001.5	13,001.5	14,001.5	15,001.5	16,001.5
- Revenue / Avg. DIRECTV Sub / Month	\$45.92	\$47.50	\$47.01	\$46.57	\$56.61	\$47.86	\$46.23	\$46.07	\$46.87	\$49.93	\$47.07	\$46.30	\$46.41	\$46.39	\$46.17	\$45.54
- % Change Year-to-Year	...	10.9%	7.9%	6.6%	-0.6%	5.4%	-2.2%	-2.0%	-1.5%	-1.3%	4.9%	2.6%	2.3%	1.7%	1.4%	1.1%
Total Revenue / Avg. DIRECTV O&O Sub / Month	\$45.92	\$47.50	\$47.01	\$46.57	\$56.61	\$47.86	\$46.23	\$46.07	\$46.87	\$49.93	\$47.07	\$46.30	\$46.41	\$46.39	\$46.17	\$45.54
- % Change Year-to-Year	...	10.9%	7.9%	6.6%	-0.6%	5.4%	-2.2%	-2.0%	-1.5%	-1.3%	4.9%	2.6%	2.3%	1.7%	1.4%	1.1%
Operating Expenses																
Programming	(\$1,877.2)	(\$489.9)	(\$497.7)	(\$504.3)	(\$561.7)	(\$2,053.5)	(\$542.4)	(\$556.4)	(\$570.8)	(\$2,302.0)	(\$2,625.7)	(\$2,864.6)	(\$3,073.4)	(\$3,253.4)	(\$3,405.0)	(\$3,528.4)
- % of Total Revenue	40.0%	37.0%	37.0%	37.0%	37.0%	37.0%	37.0%	37.0%	37.0%	37.0%	37.0%	37.0%	37.0%	37.0%	37.0%	37.0%
Customer Service, Billing and Other	(\$435.5)	(\$175.4)	(\$179.7)	(\$184.3)	(\$191.8)	(\$731.2)	(\$198.2)	(\$204.0)	(\$210.0)	(\$729.2)	(\$806.2)	(\$856.7)	(\$895.0)	(\$1,023.1)	(\$1,041.9)	(\$1,052.7)
- % of Total Revenue	9.3%	13.2%	13.2%	13.2%	13.2%	13.2%	13.2%	13.2%	13.2%	13.2%	13.2%	13.2%	13.2%	13.2%	13.2%	13.2%
General and Administrative	(\$305.7)	(\$155.6)	(\$128.0)	(\$124.3)	(\$126.6)	(\$602.1)	(\$153.6)	(\$150.9)	(\$151.3)	(\$646.8)	(\$690.5)	(\$721.5)	(\$744.3)	(\$752.4)	(\$774.7)	(\$786.2)
- % of Total Revenue	7.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%
Total Operating Expenses	(\$2,618.3)	(\$820.9)	(\$807.0)	(\$813.0)	(\$880.1)	(\$3,386.8)	(\$894.3)	(\$911.3)	(\$932.1)	(\$3,700.0)	(\$4,222.4)	(\$4,542.4)	(\$4,812.8)	(\$5,028.5)	(\$5,221.7)	(\$5,377.2)
- % of Total Revenue	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%	75.0%
Pre-Marketing Cash Flow	\$1,877.2	\$588.1	\$582.4	\$583.4	\$674.5	\$2,168.3	\$571.7	\$569.2	\$586.8	\$2,441.7	\$2,874.0	\$3,262.7	\$3,639.7	\$3,993.4	\$4,289.6	\$4,591.8
- % Change Year-to-Year	44.9%	28.4%	22.2%	19.2%	-1.5%	10.4%	13.8%	10.1%	11.1%	18.5%	40.2%	45.0%	49.4%	47.0%	75.7%	59.8%
- Pre-Marketing Cash Flow Margin	39.0%	39.0%	40.0%	40.4%	37.1%	39.0%	39.0%	38.4%	39.0%	39.0%	40.5%	41.9%	43.0%	44.2%	45.1%	46.2%
Dealer Residuals	(\$164.4)	(\$35.0)	(\$30.5)	(\$35.3)	(\$37.5)	(\$138.3)	(\$41.0)	(\$35.0)	(\$37.5)	(\$148.5)	(\$166.5)	(\$181.1)	(\$194.7)	(\$206.4)	(\$216.4)	(\$225.7)
- % of Total Revenue	4.7%	3.2%	2.8%	3.1%	3.0%	3.0%	3.4%	2.8%	3.0%	2.9%	2.9%	2.6%	2.7%	2.8%	2.7%	2.7%
Retention Marketing	(\$164.4)	(\$35.0)	(\$30.5)	(\$35.3)	(\$37.5)	(\$138.3)	(\$41.0)	(\$35.0)	(\$37.5)	(\$148.5)	(\$166.5)	(\$181.1)	(\$194.7)	(\$206.4)	(\$216.4)	(\$225.7)
- % of Total Revenue	4.7%	3.2%	2.8%	3.1%	3.0%	3.0%	3.4%	2.8%	3.0%	2.9%	2.9%	2.6%	2.7%	2.8%	2.7%	2.7%
Total Other Expenses	(\$328.8)	(\$70.0)	(\$61.0)	(\$70.5)	(\$75.0)	(\$276.5)	(\$80.0)	(\$70.0)	(\$75.0)	(\$295.0)	(\$332.9)	(\$362.3)	(\$386.4)	(\$412.9)	(\$431.6)	(\$451.4)
- % of Total Revenue	9.4%	6.5%	5.6%	6.3%	6.0%	5.7%	5.5%	5.7%	5.9%	5.8%	5.9%	5.6%	5.6%	5.5%	5.4%	5.3%
Adjusted Pre-Marketing Cash Flow	\$1,548.8	\$433.1	\$427.0	\$447.9	\$497.0	\$1,891.8	\$491.7	\$422.3	\$449.3	\$2,146.7	\$2,541.1	\$2,900.4	\$3,241.3	\$3,579.3	\$3,867.7	\$4,140.3
- % Change Year-to-Year	39.5%	27.5%	35.6%	37.0%	10.1%	22.0%	13.5%	16.5%	19.0%	31.6%	16.4%	14.1%	11.9%	10.2%	10.7%	10.9%
- Pre-Marketing Cash Flow Margin	32.5%	32.7%	32.5%	32.2%	32.2%	32.0%	32.0%	32.0%	32.0%	32.0%	32.0%	32.0%	32.0%	32.0%	32.0%	32.0%
Subscriber Acquisition Costs (SAC)																
Basic Box	(\$1,393.8)	(\$376.3)	(\$392.0)	(\$454.5)	(\$429.1)	(\$1,651.0)	(\$399.1)	(\$392.1)	(\$396.0)	(\$1,563.1)	(\$1,406.5)	(\$1,220.4)	(\$1,136.5)	(\$1,125.4)	(\$1,130.0)	(\$1,130.7)
- SAC / Gross Addition	\$498	\$549	\$671	\$544	\$529	\$585	\$522	\$571	\$530	\$518	\$498	\$474	\$433	\$371	\$365	\$362
- Reported SAC / Gross Addition	\$510	\$535	\$575	\$555	\$580	\$596	\$520	\$530	\$530	\$525	\$478	\$407	\$373	\$365	\$360	\$357
Advanced Box	0.0	(6.9)	(10.0)	(5.0)	(4.9)	(26.0)	(7.8)	(7.5)	(9.6)	(36.4)	(43.2)	(53.0)	(63.2)	(73.8)	(84.4)	(95.3)
- SAC / Gross Addition	\$0	\$19	\$17	\$6	\$6	\$6	\$10	\$11	\$13	\$12	\$15	\$19	\$21	\$24	\$24	\$25
Expensed SAC	(\$1,393.8)	(\$383.1)	(\$402.0)	(\$459.5)	(\$434.0)	(\$1,677.0)	(\$406.7)	(\$399.6)	(\$401.7)	(\$1,620.5)	(\$1,451.7)	(\$1,262.4)	(\$1,169.7)	(\$1,169.2)	(\$1,165.0)	(\$1,165.0)
- Total SAC / Gross Addition	\$510	\$545	\$582	\$561	\$586	\$595	\$520	\$541	\$533	\$527	\$493	\$425	\$384	\$366	\$368	\$369
Operating Cash Flow (EBITDA)	\$1,522.8	\$45.9	\$75.0	\$20.0	\$43.0	\$280.8	\$88.8	\$122.9	\$139.2	\$168.1	\$527.2	\$1,089.4	\$1,618.0	\$2,041.8	\$2,371.8	\$2,695.3
- % Change Year-to-Year	9.7%	61.3%	18.5%	-4.1%	4.9%	38.0%	7.6%	18.1%	16.6%	19.6%	153.5%	167.8%	185.5%	20.2%	16.7%	10.9%
- % of Total Revenue	43.8%	4.3%	6.8%	1.8%	3.5%	6.2%	1.9%	2.6%	2.6%	3.3%	9.4%	16.6%	23.5%	27.5%	29.7%	32.2%
Depreciation and Amortization	(\$396.0)	(\$112.0)	(\$116.0)	(\$117.0)	(\$122.0)	(\$487.0)	(\$107.0)	(\$113.0)	(\$113.0)	(\$448.0)	(\$482.8)	(\$522.0)	(\$567.1)	(\$615.9)	(\$660.4)	(\$708.1)
- % Change Year-to-Year	148.3%	4.4%	-38.8%	56.5%	18.0%	6.1%	-44.5%	-128.1%	-127.0%	-210.2%	-131.3%	-84.5%	-69.5%	-34.6%	-19.1%	-12.3%
Memorandum: Total Subscriber Acquisition Costs																
Expensed Subscriber Acquisition Costs	(\$1,393.8)	(\$383.1)	(\$402.0)	(\$459.5)	(\$434.0)	(\$1,677.0)	(\$406.7)	(\$399.6)	(\$401.7)	(\$1,620.5)	(\$1,451.7)	(\$1,262.4)	(\$1,169.7)	(\$1,169.2)	(\$1,165.0)	(\$1,165.0)
- Expensed SAC / Gross Addition	\$498	\$549	\$671	\$544	\$529	\$585	\$522	\$571	\$530	\$518	\$498	\$474	\$433	\$371	\$365	\$362
Capitalized Subscriber Acquisition Costs	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
- Capitalized SAC / Gross Addition	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Capitalized SAC / Gross Lease Add	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
- Gross Lease Add	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
- % Leased	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total O&S SAC	(\$1,393.8)	(\$383.1)	(\$402.0)	(\$459.5)	(\$434.0)	(\$1,677.0)	(\$406.7)	(\$399.6)	(\$401.7)	(\$1,620.5)	(\$1,451.7)	(\$1,262.4)	(\$1,169.7)	(\$1,169.2)	(\$1,165.0)	(\$1,165.0)
- Total SAC / Gross Addition	\$498	\$545	\$582	\$561	\$586	\$595	\$520	\$541	\$533	\$527	\$493	\$425	\$384	\$366	\$368	\$369

Source: Deutsche Bank Securities estimates and company information

Figure 24 DIRECTV— Discounted Cash Flow Valuation

(Dollars in Millions)

	2002E	2003E	2004E	2005E	2006E	2007E	2008E
Operating Cash Flow (EBITDA)	\$527.2	\$1,089.4	\$1,618.0	\$2,041.6	\$2,371.4	\$2,641.7	\$2,905.5
Satellite Capital Expenditures	(335.0)	(175.0)	(160.0)	(150.0)	(150.0)	(150.0)	(150.0)
Capitalized SAC	(28.9)	(152.7)	(352.3)	(454.6)	(478.3)	(493.4)	(501.9)
Corporate and Other Capital Expenditures	(120.0)	(128.4)	(137.4)	(147.0)	(157.3)	(168.3)	(180.1)
Unlevered Free Cash Flow	\$43.2	\$633.3	\$968.3	\$1,290.1	\$1,585.8	\$1,830.0	\$2,073.5
2002 PV of FCF discounted at 10.0%		\$575.8	\$800.3	\$969.3	\$1,083.1	\$1,136.3	\$1,170.4
2003 PV of FCF discounted at 10.0%			880.3	1,066.2	1,191.4	1,249.9	1,287.5
2004 PV of FCF discounted at 10.0%				1,172.8	1,310.6	1,374.9	1,416.2
Terminal Value @ 11.0x EBITDA							\$31,960.0
• Subscriber Multiple							\$2.39x
• Free Cash Flow Multiple							19.5x
Sum of Free Cash Flow at PV	\$5,735.1	\$5,675.3	\$5,274.5				
Plus: Terminal Value (10.0% discount rate)	18,040.6	19,844.6	21,829.1				
Total Enterprise Value	\$23,775.7	\$25,519.9	\$27,103.6				
• EV / DIRECTV O&O Subscriber	\$2.46x	\$2.43x	\$2.41x				
• EV / DBS EBITDA	45.1x	23.4x	16.8x				

Source: Deutsche Bank Securities estimates and company information



Figure 25 DIRECTV Latin America—Projected Operating Model

	1Q01A	2Q01A	3Q01A	4Q01A	1Q02A	2Q02A	3Q02A	4Q02A	2002E	2003E	2004E	2005E	2006E	2007E	2008E	2009E	2010E
Beginning of Period Subscribers	1,305	1,406	1,431	1,497	1,610	1,642	1,672	1,707	1,760	1,810	1,760	2,010	2,335	2,735	3,150	3,585	4,060
Gross Additions	257	165	175	230	188	179	172	183	222	759	803	1,042	1,231	1,390	1,531	1,601	1,656
- Change Yr. / Yr.	37.6%	-8.2%	-16.5%	-11.4%	-16.5%	-8.8%	-8.8%	-20.3%	-12.6%	5.1%	17.7%	16.6%	16.1%	12.1%	11.0%	4.8%	3.4%
Disconnections	(156)	(140)	(109)	(117)	(156)	(149)	(137)	(130)	(572)	(509)	(568)	(642)	(731)	(830)	(931)	(1,026)	(1,065)
- Months Churn	3.8%	3.3%	2.5%	2.5%	3.0%	3.0%	2.7%	2.5%	2.8%	2.3%	2.3%	2.1%	2.0%	2.0%	1.9%	1.8%	1.8%
Net Additions	101	25	66	113	32	30	35	53	150	250	325	400	500	560	600	575	590
- Change Yr. / Yr.	-3.6%	-75.2%	47.8%	-33.1%	-68.3%	-20.0%	-47.0%	-53.1%	-50.8%	66.7%	30.0%	23.1%	23.0%	10.0%	9.1%	4.2%	4.1%
End of Period Subscribers	1,406	1,431	1,497	1,610	1,642	1,672	1,707	1,760	1,760	2,010	2,335	2,735	3,150	3,585	4,060	4,585	5,110
- Average Subscribers	1,356	1,419	1,464	1,554	1,626	1,657	1,690	1,734	1,677	1,885	2,173	2,535	2,985	3,510	4,085	4,673	5,235
Revenue																	
Programming	\$148.4	\$153.2	\$153.7	\$183.1	\$148.3	\$213.8	\$187.3	\$176.8	\$704.2	\$791.7	\$919.0	\$1,079.9	\$1,280.6	\$1,516.3	\$1,777.0	\$2,046.6	\$2,308.6
- Revenue / Avg. Sub / Month	\$38.00	\$36.00	\$35.00	\$35.00	\$30.00	\$41.00	\$33.00	\$34.00	\$35.00	\$38.00	\$35.00	\$35.00	\$35.00	\$35.00	\$35.00	\$35.00	\$35.00
Other (Box Rental / Activation Payments)	18.6	21.8	47.3	22.9	110.6	16.7	19.9	20.8	79.6	96.1	111.1	130.1	153.6	181.2	211.5	242.6	272.6
- Revenue / Avg. Sub / Month	\$4.50	\$5.12	\$10.77	\$4.91	\$8.36	\$4.00	\$4.00	\$4.00	\$8.36	\$4.25	\$4.26	\$4.26	\$4.26	\$4.30	\$4.31	\$4.33	\$4.34
Total Revenue	\$167.0	\$175.0	\$201.0	\$206.0	\$258.9	\$233.6	\$197.1	\$197.6	\$783.8	\$887.8	\$1,030.1	\$1,210.0	\$1,434.2	\$1,697.5	\$1,988.5	\$2,289.2	\$2,581.2
- % Change Yr. / Yr.	44.7%	43.4%	47.8%	10.1%	34.4%	0.0%	-33.5%	-8.7%	7.6%	13.3%	10.0%	17.5%	16.5%	16.4%	17.1%	15.1%	12.9%
- Revenue / Avg. Sub / Month	\$40.56	\$41.12	\$45.77	\$30.91	\$33.83	\$47.00	\$37.00	\$38.00	\$38.96	\$39.25	\$39.51	\$39.76	\$40.04	\$40.30	\$40.56	\$40.83	\$41.09
Operating Expenses																	
Programming	(73.2)	(75.6)	(75.6)	(81.6)	(73.2)	(138.9)	(83.5)	(88.4)	(384.1)	(395.9)	(453.1)	(524.8)	(613.4)	(715.7)	(826.3)	(937.3)	(1,041.2)
- % of Programming Revenue	50.0%	50.0%	50.0%	50.0%	50.0%	65.0%	50.0%	50.0%	54.0%	50.0%	46.3%	48.0%	47.9%	47.2%	46.5%	45.9%	45.1%
Transponder / Lease/Broadcast Center	(32.0)	(32.0)	(32.0)	(32.0)	(32.0)	(32.0)	(32.0)	(32.0)	(128.0)	(131.6)	(135.8)	(139.9)	(144.1)	(148.4)	(152.8)	(157.4)	(162.1)
SG&A	(40.8)	(61.0)	(56.3)	(23.2)	(181.3)	(74.7)	(113.8)	(53.2)	(279.4)	(222.0)	(238.9)	(242.0)	(256.2)	(271.6)	(290.3)	(320.5)	(335.6)
- % of Total Revenue	24.0%	34.8%	28.0%	12.5%	45.3%	48.7%	26.3%	18.1%	35.6%	25.0%	23.0%	20.0%	18.0%	16.0%	15.0%	14.0%	13.0%
Total Operating Expenses	(146.0)	(168.6)	(163.9)	(136.8)	(186.9)	(226.4)	(167.1)	(153.6)	(591.5)	(549.5)	(627.8)	(704.7)	(814.6)	(935.7)	(1,071.6)	(1,215.2)	(1,338.9)
- % Change Yr. / Yr.	37.5%	43.8%	23.6%	-7.8%	22.2%	87.9%	2.2%	15.6%	28.2%	-5.3%	10.2%	9.8%	12.0%	11.8%	12.5%	10.8%	8.7%
- % of Total Revenue	86.5%	96.0%	82.2%	73.5%	109.0%	121.5%	90.0%	80.0%	101.0%	84.4%	60.2%	58.0%	52.0%	55.0%	53.0%	52.0%	51.0%
Pre-Marketing Cash Flow	\$19.0	\$5.4	\$35.9	\$49.2	\$109.5	\$14.9	\$51.1	\$11.8	\$7.8	\$136.2	\$204.3	\$202.3	\$418.6	\$561.8	\$711.1	\$873.0	\$1,042.4
- % Change Yr. / Yr.	144.1%	34.1%	129.1%	140.5%	214.1%	-176.7%	1042.2%	-47.7%	-10.7%	-102.5%	47.9%	48.4%	36.0%	34.2%	26.0%	22.8%	10.3%
- Pre-Marketing Cash Flow Margin	11.5%	3.1%	17.8%	26.5%	15.1%	-8.0%	-21.9%	10.0%	-1.0%	15.6%	19.6%	25.1%	29.2%	33.1%	35.8%	38.2%	40.4%
Subscriber Acquisition Costs (SAC)																	
Expensed SAC	(583.0)	(540.4)	(542.9)	(556.2)	(548.1)	(543.9)	(542.1)	(544.8)	(517.6)	(518.9)	(521.8)	(525.3)	(530.1)	(533.8)	(537.2)	(539.3)	(540.6)
- Gross SAC / Gross Add	\$245	\$245	\$245	\$245	\$245	\$245	\$245	\$245	\$245	\$245	\$245	\$245	\$245	\$245	\$245	\$245	\$245
Memo:																	
Capitalized Installation	(\$14.1)	(\$9.1)	(\$9.6)	(\$12.6)	(\$45.5)	(\$10.3)	(\$9.9)	(\$10.1)	(\$39.7)	(\$41.7)	(\$49.1)	(\$57.3)	(\$67.7)	(\$75.9)	(\$84.2)	(\$88.1)	(\$91.1)
- Capitalized SAC / Gross Add	\$55	\$55	\$55	\$55	\$55	\$55	\$55	\$55	\$55	\$55	\$55	\$55	\$55	\$55	\$55	\$55	\$55
Capitalized Equipment	(84.3)	(41.3)	(43.8)	(57.4)	(208.6)	(47.0)	(43.0)	(43.0)	(174.3)	(175.6)	(197.7)	(220.2)	(247.6)	(264.0)	(277.7)	(274.3)	(267.1)
- Capitalized SAC / Gross Add	\$240	\$250	\$260	\$250	\$250	\$240	\$240	\$240	\$240	\$231	\$231	\$231	\$231	\$231	\$231	\$231	\$231
Total DVA, SAC	(\$141.4)	(\$80.8)	(\$84.3)	(\$126.2)	(\$455.5)	(\$103.5)	(\$96.7)	(\$92.9)	(\$300.1)	(\$403.3)	(\$445.7)	(\$522.7)	(\$597.0)	(\$677.9)	(\$737.1)	(\$754.8)	(\$758.8)
- Total SAC / Gross Add	(\$550)	(\$550)	(\$550)	(\$550)	(\$550)	(\$550)	(\$550)	(\$550)	(\$550)	(\$550)	(\$550)	(\$550)	(\$550)	(\$550)	(\$550)	(\$550)	(\$550)
Operating Cash Flow (EBITDA)																	
- % Change Yr. / Yr.	15.6%	-12.5%	-80.0%	-83.7%	-45.6%	38.6%	171.4%	233.6%	-24.1%	96.6%	-74.1%	-69.6%	-430.3%	143.7%	81.2%	90.1%	43.6%
- EBITDA Margin	-26.7%	-20.0%	-3.5%	-3.6%	-12.9%	-37.0%	-40.7%	-12.5%	-23.6%	-23.6%	-5.4%	-1.4%	4.0%	8.2%	13.2%	16.9%	24.7%
Depreciation and Amortization	(58.0)	(65.0)	(45.4)	(40.0)	(43.0)	(45.0)	(47.0)	(49.0)	(184.0)	(196.9)	(210.7)	(225.4)	(241.2)	(258.1)	(276.1)	(295.5)	(316.1)
Operating Loss	(\$102.9)	(\$100.8)	(\$52.4)	(44.7)	(44.0)	(44.0)	(47.0)	(54.3)	(\$366.7)	(\$244.8)	(\$225.2)	(\$177.4)	(\$124.1)	(\$34.3)	\$59.7	\$186.2	\$320.6

Source: Deutsche Bank Securities estimates and company information

FIGURE 26 DIRECTV Latin America—Discounted Cash Flow Valuation

	2002E	2003E	2004E	2005E	2006E	2007E	2008E	2009E	2010E
Operating Cash Flow (EBITDA)	(\$184.7)	(\$47.8)	(\$14.5)	\$48.0	\$117.0	\$223.8	\$335.9	\$481.7	\$636.7
Capital Expenditures	(100.0)	(75.0)	(75.0)	(75.0)	(75.0)	(75.0)	(75.0)	(75.0)	(75.0)
Capitalized Installation	(39.7)	(41.7)	(49.1)	(57.3)	(67.7)	(75.9)	(84.2)	(88.1)	(91.1)
Capitalized Equipment	(174.3)	(175.6)	(197.7)	(220.2)	(247.8)	(264.0)	(277.7)	(274.3)	(267.1)
Unlevered Free Cash Flow	(\$498.6)	(\$340.1)	(\$336.4)	(\$304.5)	(\$273.4)	(\$191.1)	(\$101.1)	\$44.3	\$203.6
2002 PV of FCF discounted at 12.5%		(302.3)	(265.8)	(213.8)	(170.7)	(106.1)	(49.8)	19.4	79.3
2003 PV of FCF discounted at 12.5%			(289.0)	(240.6)	(192.0)	(119.3)	(56.1)	21.8	89.3
2004 PV of FCF discounted at 12.5%				(270.6)	(216.1)	(134.2)	(63.1)	24.6	100.4
Terminal Value @ 11.0x EBITDA									\$7,004.1
Sum of Free Cash Flow at PV	(\$1,009.8)	(\$795.9)	(\$559.0)						
Plus: Terminal Value (12.5% discount rate)	2,729.8	3,071.1	3,454.9						
Total Enterprise Value	\$1,720.0	\$2,275.1	\$2,895.9						
- EV / Subscriber	\$977	\$1,132	\$1,240						
- EV / Pre-Marketing Cash Flow	(221.9x)	16.5x	14.2x						
Less: DLA Debt	(911.6)	(1,266.5)	(1,664.5)						
Less: SurFin Minority Interest (25%)	(59.7)	(72.1)	(83.3)						
Less: SurFin Debt (75%)	(429.5)	(429.5)	(429.5)						
Net Asset Value	\$319.3	\$487.1	\$718.6						
GMH Interest	74.7%	74.7%	74.7%						
GMH Attributed Net Asset Value	\$238.5	\$363.8	\$536.8						

Source: Deutsche Bank Securities estimates and company information

Figure 27 Hughes Network Systems—Projected Operating Model

(Dollars in Millions)

	1Q01A	2Q01A	3Q01A	4Q01A	2001A	1Q02A	2Q02E	3Q02E	4Q02E	2002E	2003E	2004E
Revenue												
Enterprise	\$111.0	\$138.0	\$145.0	\$166.0	\$560.0	\$117.8	\$138.0	\$153.7	\$176.0	\$585.5	\$614.8	\$645.5
• % Change Year-to-Year	0.9%	8.2%	10.7%	3.1%	5.3%	6.1%	0.0%	6.0%	6.0%	4.8%	5.0%	5.0%
DIRECTWAY Consumer	\$5.5	\$6.4	\$7.6	\$9.0	\$28.4	\$10.2	\$11.5	\$13.7	\$17.2	\$52.6	\$106.0	\$192.4
• % Change Year-to-Year	—	280.0%	86.0%	187.7%	566.7%	91.0%	78.4%	79.9%	82.0%	85.4%	101.5%	81.5%
• Subscribers (000)	61	73	86	101	101	111	128	158	201	201	351	651
• Average Subscribers	56	67	80	94	74	106	120	143	180	137	278	501
• Net Additions	11	12	13	15	51	10	17	30	43	100	156	300
• Revenue / Avg. Sub / Month	\$32.00	\$32.00	\$32.00	\$32.00	\$32.00	\$32.00	\$32.00	\$32.00	\$32.00	\$32.00	\$32.00	\$32.00
DIRECTWAY Consumer Equipment	\$6.7	\$14.6	\$4.4	\$8.0	\$33.6	\$5.0	\$8.5	\$15.0	\$21.5	\$50.0	\$67.5	\$90.0
• \$ / Net Addition	\$807	\$1,214	\$336	\$535	\$659	\$500	\$500	\$500	\$500	\$500	\$430	\$300
Satellite Broadband	\$123.0	\$159.0	\$157.0	\$183.0	\$622.0	\$133.0	\$158.0	\$182.4	\$214.7	\$688.1	\$788.2	\$927.9
Carrier	\$75.0	\$70.0	\$97.0	\$96.0	\$336.0	\$41.0	\$30.0	\$50.0	\$50.0	\$171.0	\$128.3	\$102.6
• % Change Year-to-Year	102.7%	34.6%	64.4%	-10.3%	32.5%	-45.3%	-57.1%	-48.5%	-47.9%	-49.4%	-25.0%	-20.0%
Set-Top Boxes	\$51.0	\$73.0	\$86.0	\$157.0	\$367.0	\$68.0	\$69.8	\$100.8	\$124.0	\$362.5	\$325.2	\$280.8
• % Change Year-to-Year	-75.5%	-58.5%	6.2%	53.9%	-35.3%	33.3%	-4.5%	17.2%	-21.0%	-1.2%	-10.3%	-13.8%
• Terminals (000)	252	413	500	814	1,979	430	480	850	800	2,330	2,200	2,000
• \$ / Terminals	\$202	\$177	\$172	\$193	\$185	\$158	\$155	\$155	\$155	\$156	\$148	\$140
• % Change Year-to-Year	-4.6%	-8.3%	-0.2%	28.6%	-0.5%	-21.9%	-12.3%	-6.9%	-19.8%	-16.1%	-5.0%	-5.0%
SpaceWay	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
• % Change Year-to-Year	—	—	—	—	—	—	—	—	—	—	—	—
Other	(\$0.8)	\$0.2	(\$0.3)	(\$0.3)	(\$1.2)	\$0.8	\$0.0	\$0.0	\$0.0	\$0.8	\$0.0	\$0.0
Total Revenue	\$248.2	\$302.2	\$339.7	\$435.7	\$1,325.8	\$242.8	\$257.7	\$333.2	\$388.7	\$1,222.4	\$1,241.7	\$1,311.3
• % Change Year-to-Year	-31.9%	-18.7%	19.6%	11.9%	-6.0%	-2.2%	-14.7%	-1.9%	-10.8%	-7.8%	1.6%	5.8%
EBITDA												
Enterprise	\$12.0	\$16.0	\$20.0	\$21.6	\$69.6	\$14.7	\$17.3	\$19.2	\$22.0	\$73.2	\$76.8	\$80.7
• % Change Year-to-Year	20.0%	-11.1%	0.0%	7.9%	2.3%	22.7%	7.8%	-3.9%	1.9%	5.2%	5.0%	5.0%
• EBITDA Margin	10.8%	11.8%	13.8%	13.0%	12.4%	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%
DIRECTWAY	(\$8.0)	(\$7.0)	(\$8.0)	(\$4.6)	(\$46.6)	(\$3.7)	(\$2.0)	(\$2.0)	(\$1.0)	(\$10.7)	(\$5.0)	(\$30.0)
Satellite Broadband	(\$16.0)	(\$21.0)	(\$18.0)	(\$22.0)	(\$77.0)	(\$19.0)	(\$10.8)	(\$1.8)	\$4.0	(\$27.5)	\$11.8	\$80.7
Carrier	\$4.0	\$2.0	\$7.0	\$9.0	\$22.0	(\$2.0)	(\$1.5)	(\$1.5)	\$2.5	(\$2.5)	\$3.2	\$2.6
• % Change Year-to-Year	-166.7%	-125.0%	-73.1%	-55.0%	-31.3%	-150.0%	-175.0%	-121.4%	-72.2%	-111.4%	-228.3%	-20.0%
• EBITDA Margin	5.3%	2.9%	7.2%	9.4%	6.5%	-4.9%	-5.0%	-3.0%	5.0%	-1.5%	2.5%	2.5%
Set-Top Boxes	(\$8.0)	(\$5.0)	(\$4.0)	\$8.0	(\$9.0)	\$3.0	\$0.0	\$3.0	\$8.1	\$14.1	\$11.4	\$9.8
• % Change Year-to-Year	-124.2%	-127.8%	300.0%	-129.8%	-139.1%	-137.5%	-100.0%	-175.8%	0.8%	-256.5%	-19.2%	-13.8%
• EBITDA Margin	-15.7%	-6.8%	-4.7%	5.1%	-2.5%	4.4%	0.0%	3.0%	6.5%	3.9%	3.5%	3.5%
SpaceWay	(\$5.0)	(\$7.0)	(\$6.0)	(\$7.0)	(\$25.0)	(\$6.0)	(\$10.0)	(\$13.0)	(\$20.0)	(\$49.0)	(\$100.0)	(\$125.0)
• % Change Year-to-Year	66.7%	133.3%	200.0%	250.0%	150.0%	20.0%	42.9%	116.7%	185.7%	96.0%	104.1%	25.0%
Other	(\$13.3)	(\$5.8)	(\$1.6)	(\$2.1)	(\$22.8)	(\$9.0)	(\$4.0)	(\$4.0)	(\$4.0)	(\$21.0)	(\$16.0)	(\$15.0)
Total EBITDA	(\$36.3)	(\$36.8)	(\$22.6)	(\$14.1)	(\$111.8)	(\$33.0)	(\$26.3)	(\$17.3)	(\$8.4)	(\$86.0)	(\$91.6)	(\$76.8)
• % Change Year-to-Year	-328.0%	-4700.0%	-234.5%	-56.8%	—	-13.8%	-28.7%	-23.8%	-33.0%	-23.1%	6.8%	-16.0%
• EBITDA Margin	-15.4%	-12.2%	-6.7%	-3.2%	-8.4%	-13.6%	-10.2%	-5.2%	-2.4%	-7.0%	-7.4%	-5.9%
Depreciation and Amortization	(14.3)	(19.7)	(12.5)	(13.5)	(60.0)	(18.0)	(18.3)	(18.5)	(19.0)	(73.8)	(79.0)	(84.5)
Operating Loss	(\$52.6)	(\$56.5)	(\$35.1)	(\$27.6)	(\$171.8)	(\$51.0)	(\$44.6)	(\$35.8)	(\$28.4)	(\$159.8)	(\$170.5)	(\$161.4)

Source: Deutsche Bank Securities estimates and company information

Figure 28 Hughes Network Systems—Sum-of-the-Parts Valuation
(Dollars in Millions)

	Revenue			Revenue Multiple			EBITDA			EBITDA Multiple			Enterprise Value			
	2002E	2003E	2004E	2002E	2003E	2004E	2002E	2003E	2004E	2002E	2003E	2004E	2002E	2003E	2004E	
Enterprise	\$585.5	\$614.8	\$645.5	—	—	—	\$73.2	\$76.8	\$80.7	10.0x	10.0x	10.0x	\$731.9	\$768.4	\$806.9	Multiple of EBITDA
Carrier	171.0	128.3	102.6	1.0x	1.0x	1.0x	(2.5)	3.2	2.6	—	—	—	171.0	128.3	102.6	Multiple of Revenue
Sat-Top Box	362.5	325.2	280.8	1.0x	1.0x	1.0x	14.1	11.4	9.8	—	—	—	362.5	325.2	280.8	Multiple of Revenue
DIRECTWAY	52.6	106.0	192.4	—	—	—	(100.7)	(65.0)	(30.0)	—	—	—	320.3	385.3	415.3	Investment
SPACEWAY	0.0	0.0	0.0	—	—	—	(49.0)	(100.0)	(125.0)	—	—	—	707.1	932.1	994.6	0.5x Investment
Other	0.8	0.0	0.0	—	—	—	(21.0)	(18.0)	(15.0)	—	—	—	—	—	—	
Total	\$1,172.4	\$1,174.2	\$1,221.3				(\$66.0)	(\$91.6)	(\$76.9)				\$2,292.8	\$2,536.3	\$2,600.2	

Source: Deutsche Bank Securities estimates and company information



Figure 23 PanAmSat — Income Statement

	2000A	1Q01A	2Q01A	3Q01A	4Q01A	2001A	1Q02A	2Q02E	3Q02E	4Q02E	2002E	2003E	2004E	2005E
Revenue														
Operating Leases, Satellite Services and Other	\$780.3	\$199.5	\$202.9	\$202.0	\$197.7	Guidance: \$193-\$203 mil (4/12/02)	\$201.4	\$196.3	\$199.0	\$196.0	\$794.6	\$822.4	\$859.4	\$902.4
- % Change Year-to-Year	-0.9%	-0.3%	5.3%	5.9%	0.5%	2.1%	0.9%	-2.3%	-1.5%	-0.9%	-0.9%	3.5%	4.5%	5.0%
Outright Sales and Sales Type Leases	243.3	5.7	51.0	5.9	5.9	67.9	5.8	5.0	5.0	5.0	20.8	20.0	20.0	20.0
- % Change Year-to-Year	92.9%	-94.2%	-95.9%	497.5%	-3.7%	-72.1%	0.8%	-5.5%	-90.2%	-15.6%	-69.4%	-3.7%	0.0%	0.0%
- % of Total Revenue	23.8%	2.8%	2.5%	2.9%	2.9%	7.8%	2.8%	2.5%	2.5%	2.5%	2.5%	2.4%	2.3%	2.2%
Total Revenue	\$1,023.6	\$205.2	\$208.2	\$253.0	\$203.7	\$870.1	\$207.1	\$203.3	\$204.0	\$201.0	\$815.4	\$842.4	\$879.4	\$922.4
- % Change Year-to-Year	26.3%	-31.4%	-35.4%	26.9%	0.4%	-15.0%	0.9%	-2.4%	-19.4%	-1.3%	-6.3%	3.3%	4.4%	4.9%
Memo:														
Converted Lease Metric	\$928.0	\$211.0	\$213.0	\$213.0	\$209.0	Guidance: \$204-\$214 mil (4/12/02)	\$213.0	\$209.6	\$210.3	\$207.3	\$840.1	\$867.9	\$904.9	\$947.9
- % Change Year-to-Year	-0.6%	0.0%	3.4%	4.9%	0.5%	2.2%	0.9%	-1.6%	-1.3%	-0.8%	-0.7%	3.3%	4.3%	4.7%
Operating Leases	\$780.3	\$199.5	\$202.9	\$202.0	\$197.7	\$802.2	\$201.4	\$196.3	\$199.0	\$196.0	\$794.6	\$822.4	\$859.4	\$902.4
- Sales and Sales Type Leases	\$6.0	\$11.5	\$10.1	\$11.0	\$11.3	\$43.8	\$11.6	\$11.3	\$11.3	\$11.3	\$45.5	\$45.5	\$45.5	\$45.5
Backlog (billion)	\$6.0	\$6.2	\$6.0	\$5.9	\$5.8	\$5.7	\$5.7	-----	-----	-----	-----	-----	-----	-----
Utilization	72.0%	68.0%	68.0%	68.0%	70.0%	70.0%	70.0%	-----	-----	-----	-----	-----	-----	-----
Costs and Expenses														
Direct Operating	(\$149.7)	(\$37.5)	(\$43.5)	(\$33.4)	(\$38.5)	(\$152.9)	(\$32.5)	(\$33.0)	(\$33.2)	(\$33.5)	(\$132.2)	(\$137.3)	(\$141.8)	(\$144.4)
- % Change Year-to-Year	44.0%	17.5%	17.9%	-17.0%	-5.3%	2.1%	-13.3%	-24.2%	-0.8%	-13.0%	-13.5%	3.9%	3.2%	1.8%
- % of Operating Lease Revenue	19.2%	18.8%	21.4%	16.5%	19.5%	19.1%	16.1%	16.5%	16.7%	17.1%	16.5%	16.7%	16.5%	16.0%
Selling, General and Administrative	(97.5)	(27.7)	(30.3)	(33.6)	(24.5)	(116.1)	(32.5)	(25.0)	(25.3)	(25.5)	(108.3)	(106.9)	(107.4)	(106.3)
- % Change Year-to-Year	34.6%	31.9%	29.3%	42.5%	-16.7%	19.2%	17.2%	-17.4%	-24.8%	4.0%	-8.9%	-1.3%	0.5%	0.8%
- % of Operating Lease Revenue	12.5%	13.9%	14.9%	16.6%	12.4%	14.5%	16.1%	12.6%	12.7%	13.0%	13.6%	13.0%	12.5%	12.0%
Cost of Outright Sales and Sales Type Leases	(\$85.6)	0.0	0.0	(12.8)	0.0	(12.8)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
- % of Sales Type Lease Revenue	35.3%	0.0%	0.0%	25.0%	0.0%	18.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Other	3.4	0.0	0.0	(6.9)	(1.3)	(8.2)	8.9	0.0	0.0	0.0	8.9	0.0	0.0	0.0
Total Costs and Expenses	(\$329.6)	(\$65.2)	(\$73.8)	(\$66.7)	(\$64.4)	(\$290.0)	(\$56.1)	(\$58.0)	(\$58.6)	(\$59.0)	(\$231.6)	(\$244.3)	(\$249.2)	(\$252.7)
- % of Total Revenue	32.2%	31.8%	35.4%	34.3%	31.6%	33.3%	27.1%	28.5%	28.7%	29.4%	28.4%	28.0%	28.3%	27.4%
Total Operating Cash Flow (EBITDA)	\$694.0	\$140.0	\$134.4	\$186.3	\$139.3	\$580.1	\$151.0	\$145.3	\$145.5	\$142.0	\$583.7	\$598.1	\$630.2	\$669.7
- % Change Year-to-Year	12.1%	-30.3%	-39.3%	22.7%	2.3%	-16.4%	7.8%	8.1%	-12.5%	1.9%	0.6%	2.5%	5.4%	6.3%
- % EBITDA Margin	67.8%	68.2%	64.6%	65.7%	68.4%	66.7%	72.9%	71.5%	71.3%	70.6%	71.6%	71.0%	71.7%	72.6%
Depreciation and Amortization	(\$337.5)	(\$98.9)	(\$101.7)	(\$104.1)	(\$110.0)	(\$414.7)	(\$94.0)	(\$94.3)	(\$94.6)	(\$95.0)	(\$377.9)	(\$388.9)	(\$399.9)	(\$410.9)
Operating Income	\$356.6	\$41.2	\$32.7	\$82.2	\$29.3	\$165.3	\$57.1	\$51.0	\$50.9	\$47.0	\$205.9	\$209.3	\$230.3	\$258.9
Other Income / (Expense)														
Interest Expense, Net	(\$128.2)	(\$32.3)	(\$27.5)	(\$27.6)	(\$23.7)	(\$111.2)	(\$25.7)	(\$31.6)	(\$33.2)	(\$32.8)	(\$123.3)	(\$133.4)	(\$118.2)	(\$100.3)
Other Income / (Expense)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Income Before Taxes and Min. Interest	\$228.4	\$8.8	\$5.2	\$54.5	\$5.6	\$54.2	\$31.3	\$19.4	\$17.7	\$14.2	\$82.6	\$75.9	\$112.2	\$158.5
Income Tax Expense	(\$102.8)	(\$3.6)	(\$2.3)	(\$15.0)	(\$2.4)	(\$23.6)	(\$7.8)	(\$4.8)	(\$4.4)	(\$3.6)	(\$20.6)	(\$19.0)	(\$28.0)	(\$39.8)
- % Effective Tax Rate	45.0%	43.5%	43.5%	43.3%	43.5%	43.3%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%
Net Income	\$125.6	\$5.0	\$2.9	\$39.5	\$3.2	\$30.6	\$23.5	\$14.5	\$13.2	\$10.7	\$61.9	\$56.9	\$84.1	\$118.9
Extraordinary Item														
Net Income Applicable to Common	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$30.6	\$21.0	\$14.5	\$13.2	\$10.7	\$59.4	\$56.9	\$84.1	\$118.9
Average Common Shares	149.5	149.7	149.8	149.8	149.9	149.8	149.8	149.9	149.9	149.9	149.9	149.9	149.9	149.9
Earnings Per Share	\$0.84	\$0.03	\$0.02	\$0.13	\$0.02	\$0.20	\$0.14	\$0.10	\$0.09	\$0.07	\$0.40	\$0.38	\$0.56	\$0.79

Source: Deutsche Bank Securities Inc. estimates and company information



Figure 30 PanAmSat—Sources and Uses Statement

	2000A	1Q01A	2Q01A	3Q01A	4Q01A	2001A	1Q02A	2Q02E	3Q02E	4Q02E	2002E	2003E	2004E	2005E
Net Income	\$125.6	\$5.0	\$2.9	\$19.5	\$3.2	\$30.6	\$21.0	\$14.5	\$13.2	\$10.7	\$59.4	\$56.9	\$94.1	\$118.9
Gross Profit on Sales and Sales-type leases	(136.4)	0.0	0.0	(32.7)	0.0	(32.7)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Depreciation and Amortization	337.5	98.9	101.7	104.1	110.0	414.7	94.0	94.3	94.6	95.0	377.9	388.9	399.9	410.9
Deferred Income Taxes	73.2	11.6	2.0	10.0	(12.8)	10.8	6.8	4.8	4.4	3.6	19.6	19.0	28.0	39.6
Amort. Of Debt Issuance Costs	6.1	1.5	1.5	1.5	1.6	6.1	2.1	1.5	1.5	1.5	6.6	6.0	6.0	6.0
Change in Working Capital	16.0	(5.8)	(3.2)	70.6	33.9	95.5	(1.5)	5.0	5.0	5.0	13.5	20.0	20.0	20.0
Other	(3.2)	5.9	7.2	(41.3)	43.5	15.3	2.3	0.0	0.0	0.0	2.3	0.0	0.0	0.0
Cash Flow From Operations	\$418.7	\$117.1	\$112.2	\$131.8	\$179.3	\$540.4	\$124.7	\$120.2	\$118.8	\$115.7	\$479.3	\$490.7	\$538.0	\$595.4
Satellite Capital Expenditures	(\$393.5)	(\$57.9)	(\$87.7)	(\$76.6)	(\$92.6)	(\$314.9)	(\$68.6)	(\$110.0)	(\$73.0)	(\$57.0)	(\$308.6)	(\$200.0)	(\$200.0)	(\$200.0)
Capitalized Interest	(56.1)	(9.3)	(6.5)	(3.6)	(3.9)	(23.3)	(5.4)	(10.0)	(8.0)	(8.0)	(31.4)	(20.0)	(20.0)	(20.0)
Total Capital Expenditures	(\$449.6)	(\$67.2)	(\$94.2)	(\$80.2)	(\$96.5)	(\$338.2)	(\$74.0)	(\$120.0)	(\$81.0)	(\$65.0)	(\$340.0)	(\$220.0)	(\$220.0)	(\$220.0)
Free Cash Flow	(\$30.8)	\$48.9	\$17.9	\$51.6	\$82.8	\$202.2	\$50.7	\$0.2	\$37.8	\$50.7	\$139.3	\$270.7	\$318.0	\$375.4
Debt Issuance	0.0	0.0	0.0	0.0	0.0	0.0	1,761.6	0.0	0.0	0.0	1,761.6	0.0	0.0	0.0
Repayment of Debt	(56.4)	(21.2)	0.0	0.0	0.0	(21.2)	(1,771.5)	0.0	0.0	0.0	(1,771.5)	(200.0)	(60.0)	(357.0)
Repayment of Incentive Obligation	(6.8)	(2.0)	(2.0)	(2.4)	(2.3)	(8.7)	(2.3)	(2.3)	(2.3)	(2.3)	(9.2)	(10.0)	(10.0)	(10.0)
Insurance Proceeds	0.0	132.4	0.0	0.0	0.0	132.4	173.7	41.3	0.0	0.0	215.0	0.0	0.0	0.0
Other	234.7	22.8	2.6	1.3	3.7	30.5	(28.0)	0.0	0.0	0.0	(28.0)	0.0	0.0	0.0
Balance Available	\$140.6	\$181.9	\$18.5	\$50.5	\$64.2	\$335.1	\$184.2	\$39.2	\$35.5	\$48.4	\$307.2	\$60.7	\$248.0	\$8.4

Source: Deutsche Bank Securities Inc. estimates and company information

Figure 31 PanAmSat—Balance Sheet

Deutsche Bank

	2000A	1001A	2001A	3001A	4001A	2001A	1002A	2002E	3002E	4002E	2002E	2003E	2004E	2005E
Long Term Debt														
6 1/8% Notes Due 2003	(\$200.0)	(\$200.0)	(\$200.0)	(\$200.0)	(\$200.0)	(\$200.0)	(\$200.0)	(\$200.0)	(\$200.0)	(\$200.0)	(\$200.0)	\$0.0	\$0.0	\$0.0
6 1/8% Notes Due 2005	(275.0)	(275.0)	(275.0)	(275.0)	(275.0)	(275.0)	(275.0)	(275.0)	(275.0)	(275.0)	(275.0)	(275.0)	(275.0)	0.0
6 3/8% Notes Due 2008	(150.0)	(150.0)	(150.0)	(150.0)	(150.0)	(150.0)	(150.0)	(150.0)	(150.0)	(150.0)	(150.0)	(150.0)	(150.0)	(150.0)
6 7/8% Notes Due 2028	(125.0)	(125.0)	(125.0)	(125.0)	(125.0)	(125.0)	(125.0)	(125.0)	(125.0)	(125.0)	(125.0)	(125.0)	(125.0)	(125.0)
8 1/2% Senior Notes due 2/1/12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Term Loan A (LIBOR +3%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Term Loan B (LIBOR +3.5%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Galaxy IIIR Notes	(67.8)	(46.5)	(46.5)	(46.5)	(46.5)	(46.5)	(46.5)	(46.5)	(46.5)	(46.5)	(46.5)	(46.5)	(46.5)	(46.5)
Total Long Term Debt	(\$817.8)	(\$796.5)	(\$796.5)	(\$796.5)	(\$796.5)	(\$796.5)	(\$796.5)	(\$796.5)	(\$796.5)	(\$796.5)	(\$796.5)	(\$2,350.0)	(\$2,260.0)	(\$1,933.0)
Cash Interest Expense	(49.2)	(12.1)	(12.1)	(12.1)	(12.1)	(12.1)	(12.1)	(12.1)	(12.1)	(12.1)	(12.1)	(172.5)	(164.7)	(152.0)
Due to Affiliates (Hughes Intercompany Loan)														
Beginning of Period	(\$1,797.2)	(\$1,725.0)	(\$1,725.0)	(\$1,725.0)	(\$1,725.0)	(\$1,725.0)	(\$1,725.0)	(\$1,725.0)	(\$1,725.0)	(\$1,725.0)	(\$1,725.0)	\$0.0	\$0.0	\$0.0
End of Period	(1,725.0)	(1,725.0)	(1,725.0)	(1,725.0)	(1,725.0)	(1,725.0)	(1,725.0)	(1,725.0)	(1,725.0)	(1,725.0)	(1,725.0)	0.0	0.0	0.0
Average Subordinated Mergers Debt	(1,894.1)	(1,725.0)	(1,725.0)	(1,725.0)	(1,725.0)	(1,725.0)	(1,725.0)	(1,725.0)	(1,725.0)	(1,725.0)	(1,725.0)	0.0	0.0	0.0
Interest Rate	7.5%	7.3%	7.0%	2.5%	2.3%	4.8%	2.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Interest	(128.5)	(31.5)	(30.2)	(10.8)	(10.0)	(82.4)	(7.2)	0.0	0.0	0.0	(7.2)	0.0	0.0	0.0
Cash and Cash Equivalents														
Beginning of Period	\$117.3	\$129.3	\$290.1	\$308.6	\$359.1	\$129.3	\$443.3	\$655.9	\$695.1	\$730.5	\$778.9	\$778.9	\$839.6	\$1,087.7
End of Period	129.3	290.1	308.6	359.1	443.3	443.3	655.9	695.1	730.5	778.9	778.9	839.6	1,087.7	1,086.0
Average Cash	104.4	208.7	299.3	333.6	401.2	311.0	549.6	675.5	712.8	754.7	673.1	809.3	963.6	1,091.8
Interest Rate	6.5%	4.3%	4.3%	4.3%	4.4%	4.3%	2.5%	4.3%	4.3%	4.3%	3.9%	4.0%	4.0%	4.0%
Interest Income	6.8	2.3	3.2	3.6	4.4	13.5	3.4	7.3	7.7	8.1	26.5	32.4	38.5	43.7
Total Beginning of Period Debt, Net	(\$2,554.0)	(\$2,413.4)	(\$2,231.5)	(\$2,212.9)	(\$2,162.5)	(\$2,413.4)	(\$2,078.3)	(\$1,894.1)	(\$1,854.9)	(\$1,819.5)	(\$2,078.3)	(\$1,771.1)	(\$1,510.4)	(\$1,202.3)
Total End of Period Debt, Net	(2,413.4)	(2,231.5)	(2,212.9)	(2,162.5)	(2,078.3)	(2,078.3)	(1,894.1)	(1,854.9)	(1,819.5)	(1,771.1)	(1,771.1)	(1,510.4)	(1,202.3)	(837.0)
Debt Issuance Costs														
Beginning of Period	16.3	11.3	10.1	8.8	7.6	11.3	6.3	5.1	3.8	2.8	6.3	1.3	0.0	0.0
End of Period	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Interest amortization	(5.0)	(1.3)	(1.3)	(1.3)	(1.3)	(5.0)	(1.3)	(1.3)	(1.3)	(1.3)	(5.0)	(1.3)	0.0	0.0
End of Period	11.3	10.1	8.8	7.6	6.3	6.3	5.1	3.8	2.6	1.3	1.3	0.0	0.0	0.0
Book Interest Expense:														
Cash Interest Expense	(\$177.8)	(\$43.6)	(\$42.3)	(\$22.9)	(\$22.0)	(\$130.8)	(\$29.9)	(\$44.6)	(\$44.6)	(\$44.6)	(\$44.6)	(\$172.5)	(\$164.7)	(\$152.0)
Less: Amortization of Debt Issuance Costs	(5.0)	(1.3)	(1.3)	(1.3)	(1.3)	(5.0)	(1.3)	(1.3)	(1.3)	(1.3)	(5.0)	(1.3)	0.0	0.0
Plus: Interest Income	6.8	2.3	3.2	3.6	4.4	13.5	3.4	7.3	7.7	8.1	26.5	32.4	38.5	43.7
Plus: Capitalized Interest	56.1	9.3	6.5	3.6	3.9	23.3	5.4	10.0	8.0	8.0	31.4	20.0	20.0	20.0
Other	(8.3)	1.0	6.2	(10.7)	(8.8)	(12.2)	(3.4)	(3.0)	(3.0)	(3.0)	(12.4)	(12.0)	(12.0)	(12.0)
Total Book Interest Expense, Net	(\$128.2)	(\$32.3)	(\$27.5)	(\$27.6)	(\$23.7)	(\$11.2)	(\$25.7)	(\$31.8)	(\$33.2)	(\$32.8)	(\$23.3)	(\$33.4)	(\$118.2)	(\$100.3)

Source: Deutsche Bank Securities Inc. estimates and company information

Figure 3? PanAmSat—Discounted Cash Flow Valuation
(Dollars and Shares in Millions)

	2002E	2003E	2004E	2005E
Free Cash Flow	139.3	270.7	318.0	375.4
Plus: Cash Interest Expense	163.7	172.5	164.7	152.0
Less: Tax Credit	(57.3)	(60.4)	(57.6)	(53.2)
Unlevered Free Cash Flow	245.7	382.8	425.1	474.2
2002 PV of FCF discounted at 9.5%		\$349.6	\$354.5	\$361.2
2003 PV of FCF discounted at 9.5%			388.2	395.5
2004 PV of FCF discounted at 9.5%				433.0
Terminal Value @ 8.0x EBITDA				\$5,357.7
Sum of Free Cash Flow at PV	\$1,065.3	\$783.7	\$433.0	
Add: Terminal Value (11% discount rate)	4,080.7	4,468.3	4,892.8	
Total Value	\$5,146.0	\$5,252.0	\$5,325.9	
Less: End of Year Debt, Net	(1,771.1)	(1,510.4)	(1,202.3)	
Plus: Option Proceeds	3.1	3.1	3.1	
Net Asset Value	\$3,378.0	\$3,744.8	\$4,126.7	
Primary Shares Outstanding	149.9	149.9	149.9	
Options	0.1	0.1	0.1	
Fully Diluted Shares Outstanding	150.0	150.0	150.0	
Private Market Value Per Share	\$22.51	\$24.96	\$27.50	
Target Discount to Net Asset Value	0.0%	0.0%	0.0%	
Target Price Per Share	\$22.51	\$24.96	\$27.50	
Closing Price on : 5/7/02	\$23.41	\$23.41	\$23.41	
Upside to Target Price Per Share	-3.8%	6.6%	17.5%	
Memo:				
GMH Shares	120.8	120.8	120.8	
GMH Attributed Net Asset Value	\$2,720	\$3,015	\$3,323	
GMH Attributed Public Market Value	\$2,828	\$2,828	\$2,828	

Source: Deutsche Bank Securities Inc. estimates and company information

Figure 33 Hughes Electronics—Projected Consolidated Operating Model
(Dollars in Millions)

	2000A	1001A	2001A	3001A	4001A	2001A	1002A	2002E	3002E	4002E	2002E	2003E	2004E
Revenues													
Domestic DIRECTV	\$4,693.0	\$1,324.0	\$1,345.0	\$1,363.0	\$1,518.0	\$5,550.0	\$1,466.0	\$1,503.6	\$1,542.7	\$1,709.3	\$6,221.7	\$7,095.4	\$7,805.6
- % Change Yr / Yr	37.6%	25.0%	19.1%	18.1%	12.4%	16.3%	10.7%	11.8%	13.2%	12.8%	12.1%	14.1%	10.0%
DIRECTV Latin America (DLA)	541.0	165.0	175.0	201.0	186.0	727.0	165.0	233.6	187.5	197.6	783.8	887.8	1,030.1
- % Change Yr / Yr	71.2%	44.1%	43.4%	47.8%	10.1%	34.4%	0.0%	33.9%	4.7%	6.2%	7.8%	13.3%	16.0%
Other DTH Broadcast / DIRECTV Broadband	4.0	0.9	7.7	9.0	11.0	28.6	14.0	17.0	20.2	24.0	75.2	145.5	247.8
- % Change Yr / Yr	-93.8%	—	—	—	—	—	—	—	—	—	—	—	70.4%
Satellite Services (PanAmSat)	1,023.6	205.2	208.2	253.0	203.7	870.1	207.1	203.3	204.0	201.0	815.4	842.4	879.4
- % Change Yr / Yr	26.3%	-31.4%	-35.4%	26.9%	0.4%	-15.9%	0.9%	-2.4%	-1.9%	-1.5%	4.3%	3.3%	4.4%
Network Systems (HNS)	1,409.8	248.2	302.2	339.7	435.7	1,325.8	243.8	257.7	333.2	366.7	1,222.4	1,241.7	1,311.3
- % Change Yr / Yr	1.8%	-31.6%	-19.7%	18.6%	11.9%	-6.9%	-2.2%	14.7%	1.8%	10.8%	7.8%	1.6%	5.6%
Intercompany Eliminations and Other	(383.8)	(50.3)	(53.0)	(62.4)	(73.8)	(238.5)	(56.7)	(50.0)	(50.0)	(50.0)	(206.7)	(200.0)	(200.0)
- % of Total Revenue	5.3%	2.7%	2.7%	3.0%	3.2%	2.8%	2.8%	2.3%	2.2%	2.0%	2.3%	2.0%	1.8%
Total Revenues	\$7,287.6	\$1,893.0	\$1,865.1	\$2,103.3	\$2,290.8	\$8,262.0	\$2,036.2	\$2,185.4	\$2,237.5	\$2,470.8	\$8,911.7	\$10,913.7	\$11,874.2
- % Change Yr / Yr	31.1%	11.2%	8.1%	24.8%	10.8%	13.4%	7.7%	8.1%	8.4%	8.3%	7.9%	12.4%	10.6%
Operating Cash Flow (EBITDA)													
Domestic DIRECTV	\$152.0	\$50.0	\$75.0	(\$28.0)	\$63.0	\$180.0	\$29.0	\$122.9	\$139.2	\$180.1	\$471.2	\$1,089.4	\$1,618.0
- % Change Yr / Yr	0.7%	61.3%	188.5%	-177.6%	6.8%	5.3%	-42.0%	63.8%	-67.0%	185.6%	194.5%	131.2%	48.5%
- % EBITDA Margin	3.2%	3.6%	5.6%	-2.1%	4.2%	2.9%	2.0%	8.2%	9.0%	10.5%	7.6%	15.4%	20.7%
DIRECTV Latin America (DLA)	(171.0)	(44.0)	(35.0)	(7.0)	(36.0)	(122.0)	(61.0)	(95.0)	(23.3)	(5.3)	(184.7)	(47.8)	(14.5)
- % Change Yr / Yr	64.4%	15.8%	-12.5%	-86.0%	-18.3%	-28.7%	38.6%	171.4%	233.6%	-85.2%	51.4%	—	—
- % EBITDA Margin	-31.8%	-26.7%	-20.0%	-3.5%	-16.4%	-16.9%	-37.0%	-40.7%	-12.9%	-2.7%	-23.6%	-5.4%	-1.4%
Other DTH Broadcast / DIRECTV Broadband	(5.5)	0.0	(41.3)	(33.0)	(32.0)	(106.3)	(30.0)	(27.0)	(24.0)	(21.0)	(102.0)	(49.7)	19.3
- % Change Yr / Yr	-76.2%	—	—	—	—	—	—	—	—	—	—	—	—
- % EBITDA Margin	-137.5%	—	—	—	—	—	—	—	—	—	—	—	—
Satellite Services (PanAmSat)	694.0	140.0	134.4	165.3	130.3	580.1	151.0	145.3	145.5	142.0	583.7	598.1	630.2
- % Change Yr / Yr	12.1%	-30.3%	-36.3%	23.7%	2.3%	-16.4%	7.9%	6.1%	-12.9%	-1.9%	6.8%	2.5%	5.4%
- % EBITDA Margin	97.8%	86.2%	84.6%	65.7%	64.4%	66.7%	72.9%	71.9%	71.3%	70.6%	71.6%	71.0%	71.7%
Network Systems (HNS)	0.1	(38.3)	(36.8)	(22.6)	(14.1)	(111.8)	(33.0)	(26.3)	(17.3)	(9.4)	(86.0)	(91.6)	(78.9)
- % Change Yr / Yr	-100.1%	-328.6%	-4700.0%	-234.8%	-68.9%	—	-13.8%	-28.7%	-23.8%	-33.0%	—	6.8%	-16.0%
- % EBITDA Margin	0.0%	-15.4%	-12.2%	-4.7%	-3.2%	-4.4%	-13.6%	-12.2%	-5.2%	-2.4%	-7.0%	-7.4%	-5.8%
Intercompany Eliminations and Other	(86.1)	5.5	(14.3)	0.8	(2.0)	(10.1)	78.2	(25.0)	(25.0)	(25.0)	3.2	(75.0)	(75.0)
- % EBITDA Margin	-22.4%	-10.6%	27.1%	-1.3%	2.7%	2.8%	-137.6%	50.0%	50.0%	50.0%	-0.3%	5.3%	3.0%
Total Operating Cash Flow (EBITDA)	\$583.5	\$113.2	\$82.0	\$76.5	\$118.2	\$389.9	\$134.2	\$89.8	\$198.8	\$261.3	\$888.5	\$1,432.8	\$2,161.1
- % Change Yr / Yr	136.2%	-20.4%	-64.3%	-29.1%	-32.1%	-33.2%	18.8%	15.8%	154.9%	121.1%	177.8%	107.7%	47.8%
- % EBITDA Margin	8.0%	6.0%	4.1%	3.6%	5.2%	4.7%	6.6%	4.4%	8.7%	10.8%	7.7%	14.2%	18.0%
Depreciation and Amortization													
Domestic DIRECTV	(\$396.0)	(\$112.0)	(\$116.0)	(\$117.0)	(\$122.0)	(\$467.0)	(\$107.0)	(\$111.0)	(\$113.0)	(\$115.0)	(\$446.0)	(\$482.8)	(\$522.9)
- % Change Yr / Yr	38.4%	18.7%	24.7%	19.4%	11.9%	17.9%	-4.9%	-4.3%	-3.4%	-3.7%	-4.3%	8.2%	8.3%
DIRECTV Latin America (DLA)	(138.0)	(58.0)	(65.0)	(45.4)	(40.0)	(208.3)	(43.0)	(45.0)	(47.0)	(49.0)	(184.0)	(196.9)	(210.7)
- % Change Yr / Yr	112.3%	190.0%	132.1%	28.8%	-27.4%	50.9%	-25.9%	-36.8%	3.6%	22.7%	-11.7%	7.0%	7.0%
Other DTH Broadcast / DIRECTV Broadband	0.6	18.0	(0.6)	(8.9)	(8.9)	0.2	(2.0)	(2.0)	(2.0)	(2.0)	(6.0)	(15.0)	(20.0)
- % Change Yr / Yr	-40.0%	—	—	—	—	—	—	—	—	—	—	—	—
Satellite Services (PanAmSat)	(337.5)	(98.9)	(101.7)	(104.1)	(110.0)	(414.7)	(94.0)	(94.3)	(94.6)	(95.0)	(377.9)	(388.9)	(399.9)
- % Change Yr / Yr	20.3%	34.2%	24.8%	24.6%	11.9%	22.9%	-5.0%	-7.3%	-0.1%	-13.6%	-8.9%	2.9%	2.8%
Network Systems (HNS)	(63.6)	(114.3)	(119.7)	(12.5)	(13.5)	(60.0)	(18.0)	(18.3)	(18.5)	(19.0)	(73.8)	(79.0)	(84.5)
- % Change Yr / Yr	-17.8%	-14.4%	10.1%	-17.8%	-2.2%	-5.7%	25.9%	-7.1%	48.0%	40.7%	23.0%	7.0%	7.0%
Intercompany Eliminations and Other	(8.2)	(1.0)	(2.0)	7.6	(2.5)	2.1	2.0	0.0	0.0	0.0	2.0	0.0	0.0
- % Change Yr / Yr	(842.8)	(\$265.7)	(\$305.8)	(\$280.2)	(\$296.8)	(\$1,147.7)	(\$262.8)	(\$279.8)	(\$275.1)	(\$286.8)	(\$1,087.7)	(\$1,182.3)	(\$1,237.9)
- % EBITDA Margin	40.3%	29.8%	35.8%	17.6%	7.9%	21.9%	-1.4%	-11.3%	-1.8%	-5.7%	-5.2%	6.9%	6.5%
Operating Profit													
Domestic DIRECTV	(\$244.0)	(\$62.0)	(\$41.0)	(\$145.0)	(\$59.0)	(\$307.0)	(\$78.0)	\$11.9	\$26.2	\$65.1	\$25.2	\$606.8	\$1,095.2
- % Change Yr / Yr	146.5%	-4.6%	-38.8%	133.9%	18.0%	25.8%	25.8%	-128.1%	-118.0%	-210.3%	-108.2%	2310.1%	80.8%
- % Operating Profit Margin	-5.2%	-4.7%	-3.0%	-10.8%	-3.9%	-5.8%	-5.3%	0.6%	1.7%	3.9%	0.4%	8.8%	14.0%
DIRECTV Latin America (DLA)	(309.0)	(102.0)	(100.0)	(52.4)	(76.0)	(330.3)	(104.0)	(140.0)	(70.3)	(54.3)	(368.7)	(244.8)	(225.2)
- % Change Yr / Yr	82.8%	73.9%	47.1%	-38.4%	-22.5%	6.9%	2.0%	40.0%	34.4%	-26.9%	11.6%	-33.6%	-7.9%
- % Operating Profit Margin	—	—	—	—	—	—	—	—	—	—	—	—	—
Other DTH Broadcast / DIRECTV Broadband	(4.9)	18.5	(41.9)	(41.9)	(40.9)	(105.1)	(32.0)	(29.0)	(25.0)	(23.0)	(110.0)	(84.7)	(0.7)
- % Change Yr / Yr	—	—	—	—	—	—	—	—	—	—	—	—	—
- % Operating Profit Margin	—	—	—	—	—	—	—	—	—	—	—	—	—
Satellite Services (PanAmSat)	356.5	41.2	32.7	62.2	29.3	165.3	57.1	51.0	50.9	47.0	205.9	209.3	230.3
- % Change Yr / Yr	5.4%	-47.7%	-76.9%	19.8%	-21.9%	-53.8%	38.7%	56.8%	-18.2%	60.2%	24.9%	1.7%	10.0%
- % Operating Profit Margin	34.8%	20.1%	15.7%	24.8%	14.4%	19.0%	27.9%	25.1%	24.9%	23.4%	25.3%	24.8%	26.2%
Network Systems (HNS)	(63.5)	(52.6)	(55.5)	(35.1)	(27.6)	(171.8)	(51.0)	(44.6)	(35.8)	(28.4)	(159.8)	(170.5)	(161.4)
- % Change Yr / Yr	-72.8%	-52700.0%	230.4%	-2283.8%	-42.6%	170.8%	-3.0%	-21.2%	1.9%	3.1%	-7.0%	6.7%	-6.3%
- % Operating Profit Margin	-4.9%	-21.2%	-18.7%	-10.3%	-6.3%	-13.0%	-21.0%	-17.9%	-10.7%	-7.3%	-13.1%	-13.7%	-12.3%
Intercompany Eliminations and Other	(94.3)	4.4	(15.3)	8.4	(4.5)	(7.9)	80.1	(25.0)	(25.0)	(25.0)	5.1	(75.0)	(75.0)
- % of Revenue	24.8%	31.8%	20.8%	13.5%	6.1%	5.9%	-141.2%	50.0%	50.0%	50.0%	2.1%	-190.8%	0.0%
Total Operating Profit	(\$358.1)	(\$152.3)	(\$223.0)	(\$263.7)	(\$178.9)	(\$757.6)	(\$127.8)	(\$176.4)	(\$80.0)	(\$13.7)	(\$482.2)	\$261.3	\$863.2
- % Change Yr / Yr	-15.1%	144.0%	386.6%	86.2%	47.4%	111.0%	-14.2%	-21.2%	-65.7%	-88.3%	-46.8%	-188.0%	230.4%
- % Operating Profit Margin	-4.9%	-8.1%	-11.2%	-9.7%	-7.8%	-9.2%	-6.3%	-8.1%	-3.6%	-0.6%	-5.5%	2.9%	7.8%

Source: Deutsche Bank Securities estimates and company information



Figure 34 Hughes Electronics—Projected Income Statement
(Dollars in Millions)

	2000A	1Q01A	2Q01A	3Q01A	4Q01A	2001A	1Q02A	2Q02E	3Q02E	4Q02E	2002E	2003E	2004E
Revenue													
DBS Leasing and Other Services	\$6,262.2	\$1,698.2	\$1,738.6	\$1,800.9	\$1,934.8	\$7,202.3	\$1,858.0	\$1,883.9	\$1,946.7	\$2,149.4	\$7,837.9	\$8,711.9	\$9,634.6
- % Change Yr / Yr	21.2%	15.5%	11.1%	23.5%	11.2%	15.5%	8.4%	8.4%	6.3%	11.1%	8.8%	11.2%	10.8%
- % of Total Revenues	85.1%	80.7%	87.6%	87.0%	84.8%	87.2%	81.2%	87.0%	87.0%	87.0%	88.0%	87.2%	87.0%
Product Sales	\$1,025.4	\$194.8	\$248.5	\$272.4	\$346.0	\$1,069.7	\$180.2	\$281.5	\$290.9	\$321.2	\$1,073.8	\$1,301.6	\$1,429.6
- % Change Yr / Yr	3.1%	-15.8%	-9.2%	34.2%	8.1%	3.3%	-7.8%	14.2%	6.8%	-7.2%	1.3%	21.2%	10.6%
- % of Total Revenues	14.1%	10.3%	12.4%	13.0%	15.2%	12.8%	8.8%	13.0%	13.0%	13.0%	12.0%	13.0%	13.0%
Total Revenue	\$7,287.6	\$1,893.0	\$1,985.1	\$2,103.3	\$2,280.8	\$8,272.0	\$2,038.2	\$2,165.4	\$2,237.5	\$2,470.6	\$8,911.7	\$10,013.7	\$11,074.2
- % Change Yr / Yr	31.1%	11.2%	8.1%	24.6%	10.6%	13.4%	7.7%	8.1%	6.4%	8.3%	7.8%	12.4%	10.6%
Operating Costs and Expenses													
Broadcast Programming and Other	(\$2,812.8)	(\$738.7)	(\$786.6)	(\$830.1)	(\$888.8)	(\$3,254.2)	(\$903.2)	(\$866.8)	(\$885.5)	(\$968.7)	(\$3,654.0)	(\$4,007.5)	(\$4,431.9)
- % of DBS Leasing and Other Serv. Rev.	44.9%	43.5%	45.2%	45.5%	46.5%	46.2%	48.6%	46.0%	46.0%	46.0%	46.8%	46.0%	46.0%
Cost of Products Sold	(826.4)	(154.5)	(189.2)	(246.7)	(309.8)	(800.2)	(173.0)	(244.8)	(253.1)	(257.7)	(886.7)	(1,132.6)	(1,223.7)
- % of Product sales	80.6%	79.3%	78.6%	80.8%	89.5%	84.8%	86.0%	87.0%	87.0%	8.0%	84.8%	87.0%	85.0%
Selling, General and Administrative	(3,054.4)	(886.6)	(927.3)	(960.0)	(953.8)	(3,717.7)	(827.8)	(958.9)	(994.0)	(1,194.9)	(3,875.6)	(3,450.1)	(3,317.5)
- % of Total Revenues	41.9%	46.8%	46.7%	45.2%	41.8%	45.0%	40.6%	44.3%	40.0%	48.4%	43.5%	34.9%	30.0%
Total Op. Costs and Expenses	(\$6,693.6)	(\$1,779.8)	(\$1,903.1)	(\$2,036.8)	(\$2,162.4)	(\$7,872.1)	(\$1,904.0)	(\$2,070.4)	(\$2,042.5)	(\$2,226.2)	(\$8,226.2)	(\$8,590.2)	(\$8,873.1)
- % Change Yr / Yr	25.9%	14.8%	14.6%	28.2%	13.5%	17.6%	7.0%	8.8%	0.8%	2.2%	4.5%	4.4%	4.5%
Operating Cash Flow (EBITDA)	\$594.0	\$113.2	\$82.0	\$76.5	\$118.2	\$389.8	\$134.2	\$86.0	\$198.0	\$261.3	\$685.8	\$1,423.6	\$2,191.1
- % Change Yr / Yr	143.5%	-25.9%	-54.3%	-29.1%	-23.1%	-34.4%	18.6%	15.8%	184.8%	121.1%	78.8%	107.7%	47.6%
- % EBITDA Margin	8.2%	6.0%	4.1%	3.6%	5.2%	4.7%	6.6%	4.4%	8.7%	10.6%	7.7%	14.2%	19.0%
EBITDA / Share	\$0.46	\$0.09	\$0.06	\$0.06	\$0.09	\$0.30	\$0.10	\$0.07	\$0.14	\$0.19	\$0.51	\$1.03	\$1.57
Depreciation and Amortization	(931.2)	(264.9)	(304.2)	(279.3)	(286.0)	(1,144.4)	(262.0)	(269.8)	(274.3)	(279.2)	(1,085.3)	(1,158.8)	(1,234.4)
Amort. of GM Purchase Acq. Adj.	(16.9)	(0.8)	(0.6)	(0.9)	(0.8)	(3.3)	(0.8)	(0.8)	(0.8)	(0.8)	(3.2)	(3.5)	(3.5)
Operating Income	(\$354.1)	(\$152.6)	(\$223.0)	(\$283.7)	(\$178.8)	(\$757.6)	(\$128.6)	(\$176.6)	(\$89.1)	(\$18.7)	(\$463.5)	\$261.3	\$863.2
Interest Income	49.3	23.8	19.0	9.4	4.5	56.7	4.3	11.0	5.8	3.0	24.2	10.0	11.3
Interest Expense	(218.2)	(50.5)	(42.8)	(40.6)	(61.9)	(195.9)	(76.4)	(54.8)	(56.3)	(58.1)	(245.6)	(228.7)	(235.8)
Other, Net	(292.6)	7.2	(10.9)	(86.3)	(2.7)	(92.7)	(41.8)	(5.0)	(5.0)	(5.0)	(56.6)	(50.0)	(50.0)
Pretax Income	(\$815.8)	(\$172.1)	(\$257.7)	(\$321.2)	(\$236.7)	(\$989.7)	(\$242.3)	(\$224.5)	(\$133.5)	(\$78.8)	(\$681.1)	(\$7.4)	\$568.7
Income Taxes	406.1	49.9	74.8	93.1	107.8	325.6	91.8	80.2	46.3	28.5	248.8	2.7	(213.3)
- Effective Tax Rate	49.8%	28.9%	28.0%	29.0%	48.2%	32.9%	37.9%	36.7%	34.2%	36.2%	36.2%	36.2%	36.2%
Minority Int. in Net Losses of Subs.	54.1	24.3	26.4	0.9	(1.7)	48.9	(6.7)	25.0	25.0	25.0	68.3	50.0	50.0
Income from Continuing Operations before Extra. Items	(\$355.4)	(\$97.9)	(\$156.5)	(\$227.2)	(\$132.6)	(\$514.2)	(\$157.2)	(\$119.3)	(\$64.2)	(\$25.2)	(\$366.0)	\$45.3	\$425.4
Income (Loss) from Discont. Ops.	36.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Income before Extraordinary Item	(\$319.3)	(\$97.9)	(\$156.5)	(\$227.2)	(\$132.6)	(\$514.2)	(\$157.2)	(\$119.3)	(\$64.2)	(\$25.2)	(\$366.0)	\$45.3	\$425.4
Effect of Accounting Change	0.0	(7.4)	0.0	0.0	0.0	(7.4)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net Income	\$813.9	(\$195.3)	(\$156.5)	(\$227.2)	(\$132.6)	(\$621.6)	(\$167.2)	(\$119.3)	(\$64.2)	(\$25.2)	(\$366.0)	\$45.3	\$425.4
Preferred Dividends	(97.0)	(24.1)	(24.1)	(24.1)	(24.1)	(96.4)	(24.1)	(24.1)	0.0	0.0	(48.2)	0.0	0.0
Net Income Applicable to Common	\$716.9	(\$129.4)	(\$180.6)	(\$251.3)	(\$158.7)	(\$718.0)	(\$181.3)	(\$143.4)	(\$64.2)	(\$25.2)	(\$414.2)	\$45.3	\$425.4
Adj. to Exclude GM Purchase Acq.	16.0	0.6	0.6	0.9	0.8	3.3	0.8	0.8	0.8	0.8	3.2	3.5	3.5
Net Earnings Used to Compute Avail. Separate Cons. Net Inc.	\$732.9	(\$128.6)	(\$179.8)	(\$250.4)	(\$158.9)	(\$714.7)	(\$180.5)	(\$142.6)	(\$63.4)	(\$24.4)	(\$411.0)	\$48.8	\$428.9
PF Avail. Separate Cons. Net Inc. - % of Net Earnings	\$384.9	(\$86.7)	(\$121.2)	(\$168.8)	(\$106.1)	(\$481.8)	(\$121.7)	(\$86.4)	(\$44.0)	(\$18.9)	(\$281.3)	\$33.8	\$293.6
	52.5%	87.4%	87.4%	87.4%	87.4%	87.4%	87.4%	87.6%	86.3%	86.3%	86.4%	89.3%	88.4%
Avg. GAH Common Stock Outstanding	861.2	875.4	875.9	876.8	877.3	876.4	877.6	882.9	957.6	957.6	916.9	957.6	916.9
Avg. Class H Dividend Base	1,297.0	1,299.1	1,299.6	1,300.5	1,300.9	1,300.0	1,301.2	1,306.5	1,361.2	1,361.2	1,342.5	1,361.2	1,342.5
Earnings Per Class H Share	\$0.57	(\$0.19)	(\$0.14)	(\$0.19)	(\$0.12)	(\$0.55)	(\$0.14)	(\$0.11)	(\$0.06)	(\$0.02)	(\$0.31)	\$0.44	\$0.32

Source: Deutsche Bank Securities estimates and company information

Figure 3b Hughes Electronics—Projected Sources / Uses Statement
(Dollars in Millions)

	2000A	1Q01A	2Q01A	3Q01A	4Q01A	2001A	1Q02A	2Q02E	3Q02E	4Q02E	2002E	2003E	2004E
Net Income From Continuing Ops	(\$355.4)	(\$97.9)	(\$156.5)	(\$227.2)	(\$132.6)	(\$614.2)	(\$157.2)	(\$118.3)	(\$64.2)	(\$25.2)	(\$366.0)	\$45.3	\$425.4
Depreciation and Amortization	931.2	264.9	304.2	279.3	296.0	1,144.4	262.0	266.8	274.3	279.2	1,085.3	1,156.8	1,234.4
Deferred Income Taxes	(406.1)	(49.9)	(74.8)	(93.1)	(107.8)	(325.6)	(91.8)	(80.2)	(46.3)	(28.5)	(246.8)	(2.7)	213.3
Gross Profit on Sales-type Leases	(136.4)	0.0	0.0	(32.7)	0.0	(32.7)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net Loss on Discontinued	128.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Change in Working Capital	(56.0)	(250.0)	(17.0)	60.0	(322.8)	(529.8)	(100.0)	(100.0)	(100.0)	(100.0)	(400.0)	(200.0)	(200.0)
Other	987.0	(111.7)	(6.8)	(34.7)	603.4	548.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cash Flow From Operations	\$1,090.7	(\$144.5)	\$47.1	(\$46.4)	\$336.2	\$190.3	(\$67.0)	(\$29.7)	\$63.8	\$125.4	\$72.5	\$1,001.4	\$1,673.1
Capital Expenditures	(\$1,715.1)	(\$351.2)	(\$510.0)	(\$386.0)	(\$516.1)	(\$1,743.3)	(\$360.8)	(\$454.1)	(\$426.5)	(\$417.8)	(\$1,859.3)	(\$1,443.5)	(\$1,620.0)
• DTH Broadcast	(813.8)	(127.6)	(226.3)	(166.6)	(211.8)	(734.3)	(139.5)	(207.1)	(218.3)	(222.8)	(786.0)	(613.5)	(1,086.0)
• Satellite Services	(448.5)	(67.2)	(94.2)	(80.3)	(96.5)	(336.2)	(74.0)	(120.0)	(61.8)	(65.0)	(340.0)	(220.0)	(220.0)
• Network Systems	(398.5)	(178.2)	(187.1)	(121.9)	(197.4)	(664.6)	(126.3)	(127.0)	(127.0)	(130.0)	(512.3)	(418.0)	(335.0)
• Emissions and Other	13.7	21.8	(22.8)	4.8	(10.4)	(6.4)	(19.0)	0.0	0.0	0.0	(19.0)	0.0	0.0
Preferred Stock Dividends	(97.0)	(24.1)	(24.1)	(24.1)	(24.1)	(96.4)	(24.1)	(24.1)	0.0	0.0	(48.2)	0.0	0.0
Other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Free Cash Flow	(\$721.4)	(\$519.9)	(\$487.0)	(\$438.5)	(\$204.0)	(\$1,649.4)	(\$471.9)	(\$507.9)	(\$362.7)	(\$292.4)	(\$1,633.0)	(\$442.2)	\$53.0
Investments in Companies	(\$181.2)	\$0.0	(\$209.4)	\$132.0	(\$210.4)	(\$287.8)	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Proceeds from disposal of property / sale of investments	3,781.6	0.0	96.0	0.0	136.9	204.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proceeds from Insurance Claims	36.2	0.0	132.4	0.0	0.0	132.4	173.7	41.3	0.0	0.0	215.0	0.0	0.0
Stock Options Exercised	70.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other	(890.6)	158.9	(144.8)	1.0	(554.9)	(538.8)	(24.2)	0.0	0.0	0.0	(28.2)	0.0	0.0
Balance Available	\$3,103.9	(\$340.0)	(\$640.6)	(\$305.5)	(\$832.4)	(\$2,138.7)	(\$326.4)	(\$486.6)	(\$362.7)	(\$292.4)	(\$1,448.1)	(\$442.2)	\$53.0
Short-Term Debt													
Floating Rate Notes	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
364-day revolving credit facility	0.0	(333.0)	(450.0)	(376.0)	(450.0)	(450.0)	(450.0)	(450.0)	(450.0)	(450.0)	(450.0)	(450.0)	(450.0)
Commercial Paper	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other Debt	(3.4)	(3.4)	(3.4)	(9.7)	(16.4)	(16.4)	(325.6)	(325.6)	(325.6)	(533.5)	(533.5)	(975.7)	(975.7)
Total Short-Term Debt	(\$3.4)	(\$336.4)	(\$453.4)	(\$385.7)	(\$466.4)	(\$466.4)	(\$775.6)	(\$775.6)	(\$775.6)	(\$863.5)	(\$863.5)	(\$1,425.7)	(\$1,425.7)
• Interest Expense	(\$51.7)	(\$3.0)	(\$6.9)	(\$7.3)	(\$7.5)	(\$24.7)	(\$10.9)	(\$13.8)	(\$13.8)	(\$15.4)	(\$53.4)	(\$84.3)	(\$86.8)
Long-Term Debt													
Notes Payable (PanAmSat)	(\$817.7)	(\$796.5)	(\$796.5)	(\$796.5)	(\$796.5)	(\$796.5)	(\$2,550.0)	(\$2,550.0)	(\$2,550.0)	(\$2,550.0)	(\$2,550.0)	(\$2,350.0)	(\$2,290.0)
Revolving Credit Facilities	(464.9)	(536.1)	(563.3)	(568.2)	(1,322.6)	(1,322.6)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Commercial Paper	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other Debt	(30.6)	(27.1)	(28.4)	(42.9)	(61.8)	(61.8)	(61.8)	(61.8)	(61.8)	(61.8)	(61.8)	(61.8)	(61.8)
Total Long-Term Debt	(\$1,313.2)	(\$1,359.7)	(\$1,408.2)	(\$1,427.6)	(\$2,180.9)	(\$2,180.9)	(\$2,611.8)	(\$2,611.8)	(\$2,611.8)	(\$2,611.8)	(\$2,611.8)	(\$2,411.8)	(\$2,351.8)
• Interest Expense	(\$121.8)	(\$22.4)	(\$23.2)	(\$23.9)	(\$30.7)	(\$100.1)	(\$40.0)	(\$42.7)	(\$42.7)	(\$42.7)	(\$108.1)	(\$104.4)	(\$104.0)
Cash & Cash Equivalents	\$1,508.1	\$1,527.6	\$1,052.3	\$698.5	\$700.1	\$700.1	\$1,113.6	\$647.2	\$284.4	\$200.0	\$200.0	\$200.0	\$253.0
• Interest Income	\$19.5	\$23.8	\$19.0	\$6.4	\$4.5	\$66.7	\$11.3	\$11.0	\$5.8	\$3.0	\$31.2	\$10.0	\$11.3
Total Consolidated Debt, Net	\$191.5	(\$168.5)	(\$609.3)	(\$1,114.8)	(\$1,947.2)	(\$1,947.2)	(\$2,273.6)	(\$2,748.2)	(\$3,193.0)	(\$3,395.3)	(\$3,395.3)	(\$3,637.5)	(\$3,784.5)
Memo: Consolidated Debt Breakout													
PanAmSat Debt, Net (Excl. Interco Loan)	(688.4)	(506.5)	(487.9)	(437.5)	(353.3)	(353.3)	(1,894.1)	(1,854.9)	(1,819.5)	(1,771.1)	(1,771.1)	(1,510.4)	(1,202.3)
DIA Debt	0.0	(333.0)	(450.0)	(428.6)	(450.0)	(450.0)	(568.0)	(713.0)	(819.9)	(911.6)	(911.6)	(1,286.5)	(1,864.5)
SurFin Debt	(464.9)	(536.1)	(563.3)	(568.2)	(1,322.6)	(1,322.6)	(572.6)	(572.6)	(572.6)	(572.6)	(572.6)	(572.6)	(572.6)
DIRECTV, HNS and Corporate Debt, Net	1,344.8	1,207.1	711.9	339.5	(571.3)	(571.3)	761.1	400.4	109.0	(140.1)	(140.1)	(488.0)	(345.0)
Total Consolidated Debt, Net	\$191.5	(\$168.5)	(\$609.3)	(\$1,114.8)	(\$1,947.2)	(\$1,947.2)	(\$2,273.6)	(\$2,748.2)	(\$3,193.0)	(\$3,395.3)	(\$3,395.3)	(\$3,637.5)	(\$3,784.5)

Source: Deutsche Bank Securities estimates and company information

Figure 36 Hughes Electronics –Sum-of-the-Parts Valuation

(Dollars and shares in Millions)

	2002E	2003E	2004E	Per Share			Valuation Methodology
				2002E	2003E	2004E	
Domestic DIRECTV	\$23,775.7	\$25,519.9	\$27,103.6	\$16.84	\$18.08	\$19.20	DCF Analysis
Hughes Network Systems (HNS)	2,292.8	2,539.3	2,600.2	1.62	1.80	1.84	Multiple Analysis
PanAmSat (81%)	2,857.2	2,857.2	2,857.2	2.02	2.02	2.02	Public Market
DIRECTV Latin America	238.5	363.8	536.8	0.17	0.26	0.38	DCF Analysis
Subtotal	\$29,164.2	\$31,280.2	\$33,097.8	\$20.66	\$22.16	\$23.45	
Less: DIRECTV, HNS and Corporate Debt, Net	(\$140.1)	(\$468.0)	(\$345.0)	(\$0.10)	(\$0.33)	(\$0.24)	
Plus: Note Receivable from PanAmSat	0.0	0.0	0.0	0.00	0.00	0.00	
Plus: Public Investments	634.3	692.7	757.0	0.45	0.49	0.54	Public Market
Plus: Option Proceeds	372.4	372.4	372.4	\$0.26	\$0.26	\$0.26	
GMH Net Asset Value	\$30,030.7	\$31,877.3	\$33,682.1	\$21.28	\$22.58	\$24.00	
GM Class H Shares	1,301.2	1,301.2	1,301.2				
AOL 6.25% Convertible	80.0	80.0	80.0				
Options	30.3	30.3	30.3				
Fully Diluted GMH Shares Outstanding	1,411.5	1,411.5	1,411.5				
Private Market Value Per Share	\$21.28	\$22.58	\$24.00				
Discount to Private Market Value	0.0%	0.0%	0.0%				
Public Market Value per Share	\$21.28	\$22.58	\$24.00				
Closing Price on: 5/7/02	\$14.35	\$14.35	\$14.35				
Upside to Target Price Per Share	48.3%	57.4%	67.3%				

Source: Deutsche Bank Securities estimates and company information

**Figure 37 Hughes Electronics—Valuation Multiple Analysis**

(Dollars and Shares in Millions)

	2002E	2003E	2004E
Closing Price on: 5/7/02	\$14.35	\$14.35	\$14.35
Fully Diluted Shares (1)	1,411.5	1,411.5	1,411.5
Total Market Capitalization	\$20,255.4	\$20,255.4	\$20,255.4
Plus: End of Year DIRECTV Net Debt	\$140.1	\$468.0	\$345.0
Less: Option Proceeds (1)	(372.4)	(372.4)	(372.4)
Total GMH Enterprise Value	\$20,023.1	\$20,351.1	\$20,228.0
Less: Non-DIRECTV Assets at 90% of Private Market Value			
Hughes Network Systems	(\$2,063.5)	(\$2,285.3)	(\$2,340.2)
PanAmSat (81%)	(3,142.9)	(3,457.2)	(3,802.9)
DIRECTV Latin America	(214.7)	(327.4)	(483.1)
Public Investments	(570.8)	(623.4)	(681.3)
Implied DIRECTV Enterprise Value	\$14,031.2	\$13,657.7	\$12,920.5
Year-End DIRECTV O&O Subscribers	9,640	10,498	11,245
Enterprise Value Per Subscriber	\$1,456	\$1,301	\$1,149
DIRECTV Operating Cash Flow (EBITDA)	\$527.2	\$1,089.4	\$1,618.0
EBITDA Multiple	26.6X	12.5X	8.0X
Total Company Free Cash Flow	(\$1,635.0)	(\$442.2)	\$53.0
FCF Multiple	---	---	---
Earnings per Share	(\$0.31)	\$0.04	\$0.32
P/E Multiple	---	---	44.9X

(1) Fully Diluted Shares and Option Proceeds include only in-the-money options

Source: Deutsche Bank Securities estimates and company information

Additional Information Available Upon Request

Disclosure Checklist			
Company	Ticker	Price (5/7/02)	Disclosure
EchoStar Communications	DISH	\$25.50	1, 2, 4, 8
Hughes Electronics	GMH	\$14.35	2, 8
PanAmSat	SPOT	\$23.65	1, 2

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Industry Overview

April 5, 2002

*Rise & Fall of Programming and Capital Expenditures***MSCI SECTOR CONSUMER DISCRETIONARY**

US Strategist Weight	14%
S&P 500 Weight	13%

COMPANIES FEATURED

Adelphia (ALDAC, \$10)	Overweight
AOL Time Warner (AOL, \$22)	Overweight - V
AT&T (T, \$15)	++
Cablevision (CVC, \$28)	Underweight
Charter (CHTR, \$10)	Equal-weight
Comcast (CMCSK, \$30)	++
Cox (COX, \$35)	Overweight
Insight (ICCI, \$19)	Underweight

BEST IDEAS

Cox (Cox, \$35)	Overweight
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RECENT REPORTS

Cablevision Systems: 4Q01 Results and 2002 Guidance

Team and R. Bilotti March 8, 2002

Cox Communications: Revisiting Our Upgrade to Strong Buy

Team and R. Bilotti February 26, 2002

Charter Communications: 4Q01 Results and 2002 Guidance

Team and R. Bilotti February 21, 2002

Comcast Corporation: 4Q01 Results and 2002 Guidance

Team and R. Bilotti February 20, 2002

- **Our cable television industry view: Attractive**

We estimate the aggregate equity value of the industry should appreciate 20-25% in each of 2002 and 2003 (or 45-50% on a cumulative basis).

- **ROIC and system values should rise as capex declines over next three years**

After 15 years of rising expenditures, new technologies are beginning to have a profound effect on the profitability and operating risks inherent in broadband networks.

- **Benefits of new technologies are accruing to the MSOs and their customers**

Digital video, high-speed data, and local telephony are each duopoly markets with price stability.

- **EBITDA growth of 13-14% & declining capex are fulcrums for improving ROICs**

Rising ROIC should justify 13-15 times EV/EBITDA ratios for most of the MSOs.

- **Pretax unleveraged free cash flow should reach \$260-310 per sub by 2005-06**

This compares to marginally breakeven in 2001.

Contents

Summary and Investment Conclusion	3
Digital Video and Video-on-Demand Update	25
Broadband Update: Raising our Long-Term Cable Modem Forecast	38
Residential Telephony Update	47
A Closer Look at Basic Programming Costs	50
An Analysis of Premium Television	60
Adelphia Communications	75
Time Warner Cable	93
AT&T Broadband	101
Cablevision NY Group	115
Charter Communications	135
Comcast Corporation	147
Cox Communications	160
Insight Communications	176

Rise & Fall of Programming/Capital Expenditures

Morgan Stanley & Co. Incorporated ("Morgan Stanley") is currently acting as financial advisor to Comcast Corp. ("Comcast") in its announced proposed merger with AT&T Broadband.

The proposed transaction is subject to, among other things, the approval of shareholders of Comcast and AT&T Corp. This report and the information provided herein is not intended to (i) provide voting advice, (ii) serve as an endorsement of the proposed transaction, or (iii) result in the procurement, withholding or revocation of a proxy or any other action by a security holder.

Comcast has agreed to pay fees to Morgan Stanley for its financial services, including transaction fees that are contingent upon the consummation of the proposed transaction.

Please refer to the notes at the end of the report.

Summary and Investment Conclusion

Our cable television industry view is **Attractive**, and we estimate that the aggregate equity value of the industry should appreciate 20-25% in each of 2002 and 2003 (or 45-50% on a cumulative basis). The cornerstone of our Attractive view is the hypothesis that rising returns on invested capital (ROIC) will justify 13-15x enterprise value-to-EBITDA (EV/EBITDA) ratios for most of the major multiple system operators (MSOs). Consistent 13-14% EBITDA growth and declining capital expenditures are the fulcrums for improving ROICs.

The benefits from new technologies are accruing to the MSOs and their customers. In many telecommunications sectors, the presence of multiple carriers has led to price competition that overwhelmed product innovation and cost efficiencies. As a result, profitability has declined. Digital video, high-speed data, and local telephony are each duopoly markets with price stability. In previous reports we have focused on the impact that robust demand for new services (digital video, cable modems, and cable telephony) will have on revenue growth and ROIC.

We believe that ROIC and system values also will rise as capital expenditures decline over the next three years. After 15 years of rising expenditures, new technologies are beginning to have a profound effect on the profitability and operating risks inherent in broadband networks.

- Historically, the types of hardware employed defined the capabilities of systems. Looking ahead, the capabilities of systems will be defined by the types of software employed, in our view. This shift signals a reduction in required or recurring capital expenditures.
- Software-defined networks are more complex than unidirectional networks. Operating expenses, mainly the people needed to run the networks, should rise significantly. EBITDA margins of the MSOs should become far less homogenous. New service penetration (i.e., utilization), clustering, and network provisioning should become the drivers of EBITDA margins.

We have employed discounted cash flow models as the principal valuation methodology for arriving at the 13-15x EV/EBITDA range noted above. The last section of this summary uses a generic industry model to demonstrate the value of a typical cable television system or subscriber.

Average Capital Expenditures Should Decline from \$250 to \$120-150 per Subscriber

Over the past five years the cable television industry has incurred massive expenditures to rebuild its networks. Traditional "tree and branch" one-way networks were replaced with two-way hybrid fiber-coaxial networks. Most of the rebuild programs will be completed in 2002 (Cox, Comcast, AOL Time Warner, and Insight) or 2003 (Cablevision, Charter, Adelphia, and AT&T Broadband). During the period from 1998 through 2002, annual capital expenditures averaged \$230 per subscriber.

Just under one-half of the 1998-2002 capital expenditures, or \$90-110 per subscriber, were related to the rebuild programs. We estimate that the typical cost to rebuild a cable system was \$500 per subscriber (Exhibit 4). A typical system project takes 18-24 months to complete, but an entire company takes about four years as there is a practical limit to the number of projects that can be managed simultaneously. Success-based expenditures, which directly correlate with new service deployments, were another \$50-80 per basic subscriber. The remaining \$60-70 per subscriber is normal recurring network requirements.

We expect that capital expenditures per subscriber will drop to \$170 in 2003 and average \$150-160 in 2004-2007. The decline will mirror the completion of the rebuilds. The av-

verage capital expenditures in later years will be the sum of normal recurring maintenance and incremental customer premises equipment to provide new services. It should be noted that the 2004-2007 capital expenditure forecast includes about \$20 per basic subscriber per year for telephony deployments.

Maintenance Budgets and Incremental Capacity Should Be \$60-70 per Subscriber

We estimate that replacement capital expenditures will gradually rise from \$50 per subscriber to \$60. Additional bandwidth and system extensions should add another \$10-15 and \$15-20 per subscriber, respectively. The financial risk of maintenance budget overruns is minimal. Almost every cable system expends the cost of replacing components that fail before the end of their useful life.

Exhibit 7 illustrates the maintenance expenditures for a rebuilt hybrid fiber-coaxial system. The useful life of the network components is the most significant assumption. From the 1950s through the late 1990s, the useful life of a network was not defined by the physical life of the assets. Instead, every 7-8 years the industry would retrofit its systems to expand the bandwidth in order to offer new services. We estimate that the actual useful life for most components is 10-12 years.

Over the next decade electronics and software will cut the cost of additional bandwidth to one-quarter of the historical cost. We estimate that the cost to quadruple the effective bandwidth of a system, by reducing the average node from 1,000 to 250 homes, is about \$125 per subscriber (Exhibit 6). Construction labor costs are \$60 per subscriber, or about 25% of the level incurred in the original rebuild. We assume that the bandwidth augmentation occurs in 2005 through 2010.

Reducing the average node size from 1,000 homes to 250 homes would essentially allow all of the MSO's subscribers to simultaneously use VOD (video on demand) and receive 1.5 megabits per second of data service. The augmented system would also have telecommunications grade reliability. Please note that our current demand forecasts do not require this level of capacity, and we expect a large portion of the capacity will be held in reserve.

New Service Expenditures Should Be \$50-80 per Subscriber

Additional penetration of new services will probably require \$50-80 of annual capital expenditures per basic subscriber.

The cost of a digital set-top is currently \$280 (including installation costs), or less than two-thirds of its price in 2000. Similarly, the cost of a DOCSIS 1.0 cable modem has dropped 75% in the last 24-36 months to \$85 per unit.

Servers and routers, the central core of interactive services, are marginal costs at best. At current prices the servers required to facilitate the VOD capability would be about \$60 per digital customer or \$30 per basic customer assuming 50% digital penetration. The routers for the data service would be \$150 per high-speed data customer if 1.5 megabits per second was the standard service (300-500 kilobits per second is the current standard). The routers could be installed over a 5-7 year period as the standard is gradually raised.

The Risks Are in the Human Element

Complex technology requires sophisticated employees. Over its history the cable industry has followed the financial paradigm that the lowest costs produce the highest returns. We suspect that future will not be as simple.

A typical cable system of 300,000-400,000 homes will need at least 100 specialized technicians to support its interactive and high-speed data services. Flow-through provisioning is the current industry mantra. For laymen, it essentially means that all of the network elements and customer premises equipment can be controlled through software. The various software elements must be integrated and minimize multiple human touches.

Software and technicians are fixed costs. Operating leverage is a two-dimensional concept. Clustering creates the largest potential footprint and penetration is akin to network utilization. Two examples highlight the potential impact of operating leverage

Cox has launched digital, data, and telephone services over the last five years with minimal start-up losses. It has a high degree of clustering and this allowed the penetration of its services to match the increase in its fixed-cost base.

AT&T incurred large start-up losses on data and telephony services in 1999-2001. Its initial level of clustering was far behind Cox, and its provisioning systems, especially for telephony, were rudimentary. Headend consolidation and back-office integration should allow AT&T gradually to return to normal 38-40% EBITDA margins by late 2003 or early 2004.

Price stability is the other key ingredient for healthy EBITDA margins. We estimate that the technical systems, backbone, and customer service expenses for a high-speed data subscriber average \$20 per month. These costs are a direct function of the technology employed and do not vary with revenue. At a \$45 per month service rate, the margin on an incremental subscriber is 55%. A \$10 drop to \$35 per month cuts the margin to 43%. Telephony and interactive video display the same characteristics.

How to Value a Broadband System

Valuing a cable television system is a study in operating leverage. Broadband services have historically shown very modest economic sensitivity. In contrast, broadband operating and capital costs are inexorably tied to technology cycles.

- Once network rebuilds are completed, capital expenditures should finally decline for the first time in 15 years. No other indication may be as critical in proving the hypothesis of rising ROICs.
- Pretax unleveraged free cash flow (EBITDA less capital expenditures) was marginally above breakeven in 2001 and should reach \$260-310 per subscriber by 2005-2006. The principal risk is probably in the operating margins rather than in the forecast revenue growth and capital expenditures.
- Clustering and new service penetration are the keys to leveraging the fixed operating costs that result from complex technologies, in our opinion. The best operators can probably sustain 40-45% operating margins while the laggards may decline toward 35%.
- Price stability can also drive margins. However, price leadership is a direct function of driving penetration and establishing dominant market share. Price increases for data services have become practical as the RBOCs have consistently failed to demonstrate an interest in a competing service. Interactive video is a wild card. Broadband technology is superior to satellite/PVR (personal video recorder) systems, but the spoils will likely go to the first mover rather than the best system.

We use a discounted cash flow model as our primary valuation methodology. Exhibits 1-3 illustrate the results for the entire industry, which can be viewed as a proxy for a generic system. Including telephony we estimate that the

average cable television system is worth 14-15 times current EBITDA. The multiple falls to 13-14 if telephony is excluded.

There is no question that the single most important input is the operating forecast. The early years, 2002-2003, are especially important as they serve as the base for establishing trends. It should be noted that the industry displays a sharp acceleration of EBITDA growth to 15-17% in 2002-2004. About 200-300 basis points of the annual growth is due to the rapid improvement in EBITDA margins at AT&T Broadband. Most of the margin improvement at AT&T Broadband is due to the critical mass reached in its telephony services, and a resulting shift from start-up losses to incremental EBITDA. Without AT&T, the EBITDA growth for the rest of the industry is 13-14%.

The discount rate is another crucial variable. We assume an 11.75% weighted average cost of capital. Equity is assumed to have a 15-17% required rate of return, leverage is expected to average 40-50% of the total market capitalization, and taxes are set at 40%.

The terminal value is the component that is most often overlooked. We estimate that the average terminal value is 9.5-11.5 times forward EBITDA. The ratio is based on the theory that revenue growth will drop to 6-8% after all of the new services reach relatively mature penetration levels. The EBITDA multiple is also equivalent to about 20 times NOPAT (i.e., unlevered after-tax earning power).

Technology should lower capital expenditures, which, in turn, should increase free cash flow and, finally, culminate in robust terminal values. If this thesis is wrong, each 10% increase in long-term capital expenditures will lead to a 4-5% reduction in system values.

From another perspective, if capital expenditures are higher than expected, then future depreciation charges will also rise. Higher depreciation leads to lower NOPAT and lower ROIC. Terminal EBITDA and NOPAT multiples would both be compressed by lower ROIC.

Conversely, in 1996, interactive video was still a dream and high-speed Internet service was as yet undiscovered. If improvements in technology lead to more services, revenue growth could be understated. The revenue, margin, and capital expenditure assumptions in our current model are intended to represent a base case.

Exhibit 1
US Cable Industry Discounted Cash Flow Analysis

	1999	2000	2001	2002E	2003E	2004E	2005E	2006E	2007E	2008E	2009E	2010E	2011E	2012E
Homes Passed	105,560	106,721	107,895	109,082	110,282	111,495	112,722	113,962	115,215	116,483	117,764	119,059	120,369	121,693
% Change		1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%
Data Homes Passed	35,801	61,617	75,177	88,402	94,418	99,579	100,991	102,424	103,880	105,358	106,859	108,383	109,931	111,502
Telephony Homes Passed	2,038	7,563	10,128	14,206	21,694	34,021	46,895	58,514	64,576	65,544	66,527	67,525	68,538	69,566
Basic Subscribers	68,513	69,369	69,855	70,278	70,698	71,117	71,536	71,954	72,368	72,778	73,185	73,587	73,986	74,382
% Change		1.3%	0.7%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.5%	0.5%	0.5%
Basic Penetration		65.0%	64.7%	64.4%	64.1%	63.8%	63.5%	63.1%	62.8%	62.5%	62.1%	61.8%	61.5%	61.1%
Premium Subscriptions	35,969	36,419	37,147	37,890	38,648	39,421	40,209	41,013	41,834	42,670	43,524	44,394	45,282	46,188
Premium Penetration of Basic	52.5%	52.5%	53.2%	53.9%	54.7%	55.4%	56.2%	57.0%	57.8%	58.6%	59.5%	60.3%	61.2%	62.1%
Digital Subscribers	3,691	8,823	14,670	20,152	24,774	28,684	32,028	34,973	37,637	40,138	42,402	44,348	47,172	48,560
Digital Penetration of Basic	5.4%	12.7%	21.0%	28.7%	35.0%	40.3%	44.8%	48.6%	52.0%	55.2%	57.9%	60.3%	63.8%	65.3%
High Speed Data Subscribers	1,400	4,000	7,381	11,848	17,112	22,710	28,521	34,410	40,106	45,235	49,585	53,156	56,020	58,307
HSD Penetration of Total Homes Passed	1.3%	3.7%	6.8%	10.9%	15.5%	20.4%	25.3%	30.2%	34.8%	38.8%	42.1%	44.6%	46.5%	47.9%
HSD Penetration of Data Homes Passed	3.9%	6.5%	9.8%	13.4%	18.1%	22.8%	28.2%	33.6%	38.6%	42.9%	46.4%	49.0%	51.0%	52.3%
HSD Penetration of Basic Subscribers	2.0%	5.8%	10.6%	16.9%	24.2%	31.9%	39.9%	47.8%	55.4%	62.2%	67.8%	72.2%	75.7%	78.4%
Telephony Subscribers	0.185	0.790	1.484	2.396	3.616	5.488	7.924	10.831	13.396	15.513	17.181	18.364	19.325	20.336
Tel. Penetration of Total Homes Passed	0.2%	0.7%	1.4%	2.2%	3.3%	4.9%	7.0%	9.5%	11.6%	13.3%	14.6%	15.4%	16.1%	16.7%
Tel. Penetration of Tel. Homes Passed	9.1%	10.4%	14.7%	16.9%	16.7%	16.1%	16.9%	18.5%	20.7%	23.7%	25.8%	27.2%	28.2%	29.2%
Telephony Penetration of Basic Subscribers	0.3%	1.1%	2.1%	3.4%	5.1%	7.7%	11.1%	15.1%	18.5%	21.3%	23.5%	25.0%	26.1%	27.3%
Basic Revenue per Basic Subscriber	30.17	31.83	33.09	34.75	36.36	38.15	40.02	41.99	44.05	46.22	48.49	50.88	52.40	53.97
Premium Revenue per Basic Subscriber	5.00	5.00	5.13	5.31	5.49	5.67	5.87	6.07	6.28	6.50	6.72	6.95	7.20	7.45
Premium Revenue per Premium Subscriber	9.52	9.52	9.71	9.91	10.11	10.31	10.52	10.73	10.94	11.16	11.38	11.61	11.84	12.08
Advertising Revenue per Basic Subscriber	2.85	3.28	3.48	3.64	3.74	4.03	4.31	4.62	4.94	5.30	5.67	6.08	6.44	6.83
Other Analog Revenue per Basic Subscriber	3.58	3.76	3.95	4.14	4.35	4.57	4.80	5.04	5.29	5.55	5.83	6.12	6.43	6.75
Digital Revenue per Basic Subscriber	0.43	1.01	2.36	3.66	5.11	6.56	7.95	9.30	10.57	11.82	13.10	14.38	15.84	17.31
Digital Revenue per Digital Subscriber	7.94	11.16	14.01	14.73	16.03	17.39	18.69	19.93	21.02	22.07	23.17	24.33	25.54	26.82
HSD Revenue per Basic Subscriber	0.97	1.60	2.99	5.33	8.04	10.79	13.62	16.45	19.28	21.87	24.11	25.93	28.77	31.47
HSD Revenue per HSD Subscriber	47.56	40.90	36.61	38.90	39.17	38.43	37.93	37.51	37.34	37.21	37.11	37.04	36.89	36.84
Telephony Revenue per Basic Subscriber	0.11	0.30	0.86	1.42	2.19	3.34	5.05	7.24	9.52	11.49	13.09	14.34	15.33	16.27
Tel. Revenue per Tel. Subscriber	42.26	42.26	52.37	51.18	51.35	52.07	53.70	55.37	56.72	57.69	58.44	59.19	60.03	60.87
Total Revenue per Basic Subscriber	43.12	46.78	51.86	58.06	65.27	73.10	81.62	90.70	99.93	108.75	117.01	124.67	132.41	140.04
% Change		8.5%	10.9%	11.9%	12.4%	12.0%	11.7%	11.1%	10.2%	8.8%	7.6%	6.5%	6.2%	5.8%
Basic Revenue	24,807.1	26,335.1	27,644.8	29,221.1	30,755.4	32,457.4	34,253.5	36,147.8	38,144.8	40,249.1	42,466.2	44,802.2	46,398.2	48,047.8
Premium Revenue	4,110.8	4,136.4	4,287.8	4,461.1	4,641.3	4,828.8	5,023.9	5,226.8	5,438.0	5,657.7	5,886.3	6,124.1	6,371.5	6,628.9
Advertising Revenue	2,344.9	2,713.5	2,908.8	2,893.0	3,161.2	3,425.2	3,689.7	3,974.7	4,281.6	4,612.1	4,967.9	5,351.1	5,703.2	6,077.9
Other Analog Revenue	2,943.2	3,109.7	3,297.0	3,484.4	3,680.7	3,887.7	4,106.2	4,336.8	4,580.0	4,836.5	5,106.9	5,391.9	5,692.5	6,009.3
Digital Revenue	351.6	837.6	1,974.8	3,078.4	4,321.1	5,579.3	6,807.3	8,011.6	9,155.8	10,297.4	11,474.6	12,662.9	14,027.2	15,406.4
HSD Revenue	799.0	1,325.3	2,500.1	4,487.7	6,805.9	9,182.2	11,660.1	14,164.8	16,695.3	19,053.4	21,113.9	22,833.3	25,476.7	28,012.6
Telephony Revenue	91.6	247.1	714.4	1,191.3	1,852.3	2,844.3	4,321.3	6,230.6	8,245.3	10,006.1	11,464.2	12,624.4	13,573.5	14,484.5
Total Revenue	35,448.2	38,704.7	43,327.8	48,816.9	55,217.8	62,205.0	69,861.9	78,093.2	86,540.9	94,712.3	102,480.0	109,790.0	117,242.7	124,667.4
% Change		9.2%	11.9%	12.7%	13.1%	12.7%	12.3%	11.8%	10.8%	9.4%	8.2%	7.1%	6.8%	6.3%
EBITDA	14,171.0	15,218.1	16,916.7	19,743.2	22,585.3	26,338.9	30,056.8	33,900.3	38,098.3	42,268.2	46,146.7	49,725.0	53,182.7	56,548.2
EBITDA Margin	40.0%	39.3%	39.0%	40.4%	40.9%	42.3%	43.0%	43.4%	44.0%	44.6%	45.0%	45.3%	45.4%	45.4%
% Change		7.4%	11.2%	16.7%	14.4%	16.6%	14.1%	12.8%	12.4%	10.9%	9.2%	7.8%	7.0%	6.3%
Capital Expenditures	16,026.5	16,402.9	15,396.9	12,027.1	12,007.8	11,742.0	12,004.2	10,942.5	10,754.5	8,680.8	8,377.1	8,364.6	8,090.9	
Capital Expenditures per Basic Subscriber	232.47	235.63	219.75	170.63	169.34	164.62	167.32	151.64	148.19	118.95	114.15	113.36	109.06	

Source: Morgan Stanley Research Estimate

Exhibit 2
US Cable Industry Discounted Cash Flow Analysis (cont.)

	1999	2000	2001	2002E	2003E	2004E	2005E	2006E	2007E	2008E	2009E	2010E	2011E	2012E
Required Return On Equity				14.00%										
Debt as % of Market Capitalization				30.00%										
Average Interest Rate				8.00%										
Tax Rate				40.00%										
Discount Rate				11.24%										
Unleveraged Free Cash Flow														
EBITDA				19,743.2	22,585.3	26,338.9	30,056.8	33,900.3	38,098.3	42,268.2	46,146.7	49,725.0	53,182.7	56,548.2
Depreciation				8,704.2	9,314.4	9,648.6	9,844.6	10,147.0	10,387.2	10,376.3	10,306.9	10,105.5	9,901.6	9,704.3
EBIT				11,039.0	13,270.9	16,690.3	20,212.3	23,753.3	27,711.1	31,892.0	35,839.8	39,619.5	43,281.1	46,843.9
Tax Rate				40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%
NOPAT				6,623.4	7,962.6	10,014.2	12,085.4	14,252.0	16,674.6	19,135.2	21,503.9	23,771.7	25,968.6	28,106.3
NOPAT				6,623.4	7,962.6	10,014.2	12,085.4	14,252.0	16,674.6	19,135.2	21,503.9	23,771.7	25,968.6	28,106.3
Plus: Depreciation				8,704.2	9,314.4	9,648.6	9,844.6	10,147.0	10,387.2	10,376.3	10,306.9	10,105.5	9,901.6	9,704.3
Less: Capital Expenditures				(15,996.9)	(12,027.1)	(12,007.8)	(11,742.0)	(12,004.2)	(10,942.5)	(10,754.5)	(8,680.8)	(8,377.1)	(8,364.6)	(8,090.9)
Unleveraged Free Cash Flow				(69.3)	5,249.9	7,655.0	10,257.9	12,394.7	16,039.3	18,757.0	23,130.0	25,500.2	27,505.7	29,719.8
Present Value of Unleveraged Free Cash Flow				76,410.6										
Terminal Value														
Terminal EBITDA				99,941.1										
Terminal Taxes				(19,861.8)										
Terminal Capital Expenditures				(8,576.3)										
Terminal Unleveraged Free Cash Flow				34,903.0										
Terminal NOPAT				29,792.7										
Terminal Growth Rate				6.00%										
Terminal NOPAT Multiple				20.2										
Terminal EBITDA Multiple				10.0										
Future Terminal Value				601,201.5										
Present Terminal Value				207,209.8										
Total Present Value				286,620.4										
Present Value per Subscriber				4,103.11										
Multiple of E2003 EBITDA				14.5										
Multiple of E2003 NOPAT				43.3										

Source: Morgan Stanley Research Estimates

Exhibit 3

US Cable Industry Discounted Cash Flow Analysis

	1999	2000	2001	2002E	2003E	2004E	2005E	2006E	2007E	2008E	2009E	2010E	2011E	2012E
Capital Expenditure Metrics														
Plant Maintenance per Basic Subscriber	40.00	40.80	41.62	42.45	43.30	44.16	45.05	45.95	46.87	47.80	48.76	49.73	50.73	51.74
Analog Set-top Maint. per Basic Subscriber	15.00	12.00	9.00	6.00	3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maintenance per Basic Subscriber	55.00	52.80	50.62	48.45	46.30	44.16	45.05	45.95	46.87	47.80	48.76	49.73	50.73	51.74
Line Extensions per Home Passed	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00
Rebuild/Upgrades per Basic Subscriber	111.34	107.77	110.08	94.47	47.43	46.00	38.33	38.32	25.00	25.00	0.00	0.00	0.00	0.00
HSD Maintenance per HSD Subscriber	85.00	60.00	35.00	30.00	28.50	27.08	25.72	24.44	23.21	22.05	20.95	19.90	18.91	17.96
HSD CPE Equipment Life	5	5	5	5	5	5	5	5	5	5	5	5	5	5
HSD CPE per Net Addition	425.00	300.00	175.00	150.00	142.50	135.38	128.61	122.18	116.07	110.26	104.75	99.51	94.54	89.81
Digital Maintenance per Digital Subscriber	78.93	71.04	63.93	57.54	51.79	46.61	41.95	37.75	33.98	30.58	27.52	24.77	22.29	20.06
Digital CPE Equipment Life	7	7	7	7	7	7	7	7	7	7	7	7	7	7
Cost per Digital Set-top	425.00	382.50	344.25	309.83	278.84	250.96	225.86	203.28	182.95	164.65	148.19	133.37	120.03	108.03
Digital Set-tops per Digital Subscriber	1.3x	1.3x	1.3x	1.3x	1.3x	1.3x	1.3x	1.3x	1.3x	1.3x	1.3x	1.3x	1.3x	1.3x
Digital CPE per Net Addition	552.50	497.25	447.53	402.77	362.50	326.25	293.62	264.26	237.83	214.05	192.64	173.38	156.04	140.44
Telephony Maintenance per Telephony Sub.	107.14	92.86	78.57	74.64	70.91	67.37	64.00	60.80	57.76	54.87	52.13	49.52	47.04	44.69
Telephony CPE Equipment Life	7	7	7	7	7	7	7	7	7	7	7	7	7	7
Telephony CPE per Net Addition	750.00	650.00	550.00	522.50	496.38	471.56	447.98	425.58	404.30	384.89	364.88	346.64	329.31	312.84
Capital Expenditures														
General Maintenance	3,640.1	3,523.5	3,394.6	3,263.4	3,131.5	3,013.0	2,896.5	2,781.9	2,669.3	2,558.6	2,449.8	2,343.2	2,238.6	2,136.6
Line Extensions	580.6	587.0	593.4	600.0	606.6	613.2	620.0	626.8	633.7	640.7	647.7	654.8	662.0	669.2
Rebuild and Upgrade Programs	7,429.5	7,662.7	6,619.3	3,343.5	3,261.8	2,734.1	2,749.3	1,804.0	1,814.3	0.0	0.0	0.0	0.0	0.0
HSD Maintenance	162.0	199.2	288.4	412.7	539.1	658.9	768.9	864.9	941.0	993.2	1,022.4	1,032.1	1,026.8	1,020.4
HSD Subscriber CPE	780.0	591.7	670.0	750.0	757.9	747.3	719.5	661.1	565.6	455.6	355.4	270.7	205.4	150.4
Digital Maintenance	444.5	751.0	1,001.8	1,163.2	1,245.8	1,273.3	1,264.7	1,233.5	1,189.1	1,135.8	1,074.3	1,020.1	960.3	900.3
Digital Subscriber CPE	2,551.7	2,616.7	2,208.0	1,675.6	1,275.6	981.9	778.3	633.5	535.3	436.1	337.5	240.6	195.0	150.0
Telephony Maintenance	45.3	89.3	144.8	213.1	306.6	429.2	570.1	699.6	793.1	852.1	880.1	886.5	886.3	886.3
Telephony Subscriber CPE	393.0	381.9	476.5	605.5	883.0	1,091.2	1,237.0	1,037.2	813.1	608.8	409.8	316.6	316.5	316.5
Total	16,026.5	16,402.9	15,396.9	12,027.1	12,007.8	11,742.0	12,004.2	10,942.5	10,754.5	10,680.8	10,377.1	10,364.6	10,090.9	9,890.9
Total per Basic Subscriber	232.4677	235.6345	219.7483	170.6258	169.344	164.6231	167.3182	151.6405	148.1884	143.9461	141.1514	138.362	133.362	129.0647

Source: Morgan Stanley Research Estimates

Exhibit 4

Fiber-to-the-Node Upgrade and Rebuild Capital Expenditures for Average System

Homes Passed	400,000
Basic Subscribers	260,000
Basic Penetration	65.0%

Total Number of Nodes	400
Node Size - Homes Passed	1000
Node Size - Basic Subscribers	650

Original Topology Homes per Mile	90
Original Topology Total Route Miles	4,444
New Ring-in-Ring Route Miles	0
Ring-in-Ring Miles as % Orig. Miles	0.0%
Adj. Ring-in-Ring Total Route Miles	4,444
Adj. Ring-in-Ring Homes per Mile	90
Trunk as % of Total Miles	20.0%
Underground Construction as %	40.0%
Trunk Miles - Aerial	533.3
Trunk Miles - Underground	355.6
Feeder Miles - Aerial	2,133.3
Feeder Miles - Underground	1,422.2
% of Feeder Replaced in Rebuild	40.0%
New Ring-in-Ring Miles - Aerial	0.0
New Ring-in-Ring Miles - Underground	0.0

	Unit Costs	Units Requirements	Full Rebuild		Annual Maintenance	
			Total Costs	% of Total	Maint. Cycle	Annual Cost
Laser Transmitters	\$6,000.00 per unit	1.0 nodes per laser	\$2,400,000	2.2%	5.0	\$480,000
Optical Receivers	\$2,000.00 per unit	2.0 per node	1,600,000	1.5%	5.0	320,000
Return Lasers	\$2,000.00 per unit	1.0 per node	800,000	0.7%	5.0	160,000
Fiber Trunk Cable	\$0.75 per foot		3,520,000	3.2%	20.0	176,000
Underground Trunk Construction	\$9.00 per foot		16,896,000	15.5%	20.0	844,800
Aerial Trunk Construction	\$1.50 per foot		4,224,000	3.9%	20.0	211,200
Fiber Ring-in-Ring Cable	\$0.75 per foot		-	0.0%	20.0	-
Underground Ring-in-Ring Construc.	\$9.00 per foot		-	0.0%	20.0	-
Aerial Ring-in-Ring Construction	\$1.50 per foot		-	0.0%	20.0	-
Coaxial Feeder Cable	\$1.00 per foot		7,509,333	6.9%	20.0	375,467
Underground Feeder Construction	\$9.00 per foot		27,033,600	24.8%	20.0	1,351,680
Aerial Feeder Construction	\$1.50 per foot		6,758,400	6.2%	20.0	337,920
Line Extenders	\$500.00 per unit	6.0 per mile	10,666,667	9.8%	10.0	1,066,667
Line Extender Installation	\$200.00 per unit		4,266,667	3.9%	10.0	426,667
Power Supply	\$30.00 per subscr.		7,800,000	7.2%	7.5	1,040,000
Other Feeder Electronics	\$20.00 per subscr.		5,200,000	4.8%	7.5	693,333
Other Feeder Electronics Installation	\$8.00 per subscr.		2,080,000	1.9%	7.5	277,333
Drop Cable & Installation	\$80.00 per drop	40.0% of Subs.	8,320,000	7.6%	10.0	2,080,000
Total Expenditures			\$109,074,667	100.0%		\$9,841,067
Cost per Route Mile			\$24,541.80			\$2,214.24
Cost per Home Passed			272.69			24.60
Total Cost per Subscriber			\$419.52	100.0%		\$37.85
Fiber & Laser Costs per Subscriber			32.00	7.6%		4.37
Other Material Costs per Subscriber			151.91	36.2%		20.21
Labor Costs per Subscriber			235.61	56.2%		13.27

Source: Morgan Stanley Research Estimates

Exhibit 5

Line Extension Capital Expenditures for an Average System

Homes Passed	400,000
Basic Subscribers	260,000
Basic Penetration	65.0%

	Annual New Construction
New Homes Passed	5,000
New Subscribers	3,250
Household Growth Rate	1.25%

Total Number of Nodes	5
Node Size - Homes Passed	1000
Node Size - Basic Subscribers	650

Original Topology Homes per Mile	90
Original Topology Total Route Miles	56
New Ring-in-Ring Route Miles	0
Ring-in-Ring Miles as % Orig. Miles	0.0%
Adj. Ring-in-Ring Total Route Miles	56
Adj. Ring-in-Ring Homes per Mile	90
Trunk as % of Total Miles	20.0%
Underground Construction as %	40.0%
Trunk Miles - Aerial	6.7
Trunk Miles - Underground	4.4
Feeder Miles - Aerial	26.7
Feeder Miles - Underground	17.8
% of Feeder Replaced in Rebuild	100.0%
New Ring-in-Ring Miles - Aerial	0.0
New Ring-in-Ring Miles - Underground	0.0

	Unit Costs	Units Requirements	New Construction	
			Total Costs	% of Total
Laser Transmitters	\$6,000.00 per unit	1.0 nodes per laser	\$30,000	1.3%
Optical Receivers	\$2,000.00 per unit	2.0 per node	20,000	0.9%
Return Lasers	\$2,000.00 per unit	1.0 per node	10,000	0.4%
Fiber Trunk Cable	\$0.75 per foot		44,000	1.9%
Underground Trunk Construction	\$9.00 per foot		211,200	9.2%
Aerial Trunk Construction	\$1.50 per foot		\$2,800	2.3%
Fiber Ring-in-Ring Cable	\$0.75 per foot		-	0.0%
Underground Ring-in-Ring Construc.	\$9.00 per foot		-	0.0%
Aerial Ring-in-Ring Construction	\$1.50 per foot		-	0.0%
Coaxial Feeder Cable	\$1.00 per foot		234,667	10.2%
Underground Feeder Construction	\$9.00 per foot		\$44,800	36.8%
Aerial Feeder Construction	\$1.50 per foot		211,200	9.2%
Line Extenders	\$500.00 per unit	6.0 per mile	133,333	5.8%
Line Extender Installation	\$200.00 per unit		53,333	2.3%
Power Supply	\$30.00 per subscr.		97,500	4.3%
Other Feeder Electronics	\$20.00 per subscr.		65,000	2.8%
Other Feeder Electronics Installation	\$8.00 per subscr.		26,000	1.1%
Drop Cable & Installation	\$80.00 per drop	100.0% of Subs.	260,000	11.3%
Total Expenditures			\$2,293,833	100.0%
Cost per Route Mile			\$41,289.00	
Cost per Home Passed			458.77	
Total Cost per Subscriber			\$705.79	100.0%
Fiber & Laser Costs per Subscriber			32.00	4.5%
Other Material Costs per Subscriber			243.23	34.5%
Labor Costs per Subscriber			430.56	61.0%

E= Morgan Stanley Research Estimates

Broadband Cable Television - April 5, 2002

Please see the important disclosures at the end of this report.

Exhibit 6

Line Extension Capital Expenditures for an Average System - 250 Home Node, 4-Way Split

	Original Topology	Revised Topology	Incremental Nodes and Route Miles
Homes Passed	400,000	400,000	0
Basic Subscribers	260,000	260,000	0
Basic Penetration	65.0%	65.0%	
Total Number of Nodes	400	1600	1200
Node Size - Homes Passed	1000	250	
Node Size - Basic Subscribers	650	163	
Original Topology Homes per Mile	90	90	
Original Topology Total Route Miles	4,444	4,444	0
New Ring-in-Ring Route Miles	0	667	667
Ring-in-Ring Miles as % Orig. Miles	0.0%	15.0%	
Ring-in-Ring Miles per Node	0.0	8.4	
Adj. Ring-in-Ring Total Route Miles	4,444	5,111	667
Adj. Ring-in-Ring Homes per Mile	90	78	
Trunk as % of Total Miles	20.0%	20.0%	
Underground Construction as %	40.0%	40.0%	
Trunk Miles - Aerial	533	533	0
Trunk Miles - Underground	356	356	0
Feeder Miles - Aerial	2,133	2,133	0
Feeder Miles - Underground	1,422	1,422	0
New Ring-in-Ring Miles - Aerial	0	400	400
New Ring-in-Ring Miles - Underground	0	267	267

	Unit Costs	Units Requirements	Node Split and Optimization	
			Total Costs	% of Total
Laser Transmitters	\$6,000.00 per unit	1.0 nodes per laser	\$7,200,000	21.9%
Optical Receivers	\$2,000.00 per unit	2.0 per node	4,800,000	14.6%
Return Lasers	\$2,000.00 per unit	1.0 per node	2,400,000	7.3%
Fiber Trunk Cable	\$0.75 per foot		-	0.0%
Underground Trunk Construction	\$9.00 per foot		-	0.0%
Aerial Trunk Construction	\$1.50 per foot		-	0.0%
Fiber Ring-in-Ring Cable	\$0.75 per foot		2,640,000	8.0%
Underground Ring-in-Ring Construc.	\$9.00 per foot		12,672,000	38.5%
Aerial Ring-in-Ring Construction	\$1.50 per foot		3,168,000	9.6%
Coaxial Feeder Cable	\$1.00 per foot		-	0.0%
Underground Feeder Construction	\$9.00 per foot		-	0.0%
Aerial Feeder Construction	\$1.50 per foot		-	0.0%
Line Extenders	\$500.00 per unit	6.0 per mile	-	0.0%
Line Extender Installation	\$200.00 per unit		-	0.0%
Power Supply	\$30.00 per subscr.		-	0.0%
Other Feeder Electronics	\$20.00 per subscr.		-	0.0%
Other Feeder Electronics Installation	\$8.00 per subscr.		-	0.0%
Drop Cable & Installation	\$80.00 per drop	40.0% of Subs.	-	0.0%
Total Expenditures			\$32,880,000	100.0%
Cost per Route Mile			\$7,398.00	
Cost per Home Passed			82.20	
Total Cost per Subscriber			\$126.46	100.0%
Fiber & Laser Costs per Subscriber			65.54	51.8%
Other Material Costs per Subscriber			0.00	0.0%
Labor Costs per Subscriber			60.92	48.2%

E= Morgan Stanley Research Estimates

Broadband Cable Television - April 5, 2002

Please see the important disclosures at the end of this report.

Exhibit 7

Fiber to the Node - Maintenance Expenditures Post 4-Way Split

Homes Passed	400,000
Basic Subscribers	260,000
Basic Penetration	65.0%

Total Number of Nodes	1600
Node Size - Homes Passed	250
Node Size - Basic Subscribers	163

Original Topology Homes per Mile	90
Original Topology Total Route Miles	4,444
New Ring-in-Ring Route Miles	667
Ring-in-Ring Miles as % Orig. Miles	15.0%
Adj. Ring-in-Ring Total Route Miles	5,111
Adj. Ring-in-Ring Homes per Mile	78
Trunk as % of Total Miles	20.0%
Underground Construction as %	40.0%
Trunk Miles - Aerial	533.3
Trunk Miles - Underground	355.6
Feeder Miles - Aerial	2,133.3
Feeder Miles - Underground	1,422.2
% of Feeder Replaced in Rebuild	40.0%
New Ring-in-Ring Miles - Aerial	400.0
New Ring-in-Ring Miles - Underground	266.7

	Unit Costs	Units Requirements	Original Costs			Annual Maintenance	
			First Stage Costs	Node Split Costs	Total Costs	Maint. Cycle	Annual Cost
Laser Transmitters	\$6,000.00 per unit	1.0 per node	\$2,400,000	\$7,200,000	\$9,600,000	5.0	\$1,920,000
Optical Receivers	\$2,000.00 per unit	2.0 per node	1,600,000.0	4,800,000.0	6,400,000.0	5.0	1,280,000
Return Lasers	\$2,000.00 per unit	1.0 per node	800,000.0	2,400,000.0	3,200,000.0	5.0	640,000
Fiber Trunk Cable	\$0.75 per foot		3,520,000.0	0.0	3,520,000.0	20.0	176,000
Underground Trunk Construction	\$9.00 per foot		16,896,000.0	0.0	16,896,000.0	20.0	844,800
Aerial Trunk Construction	\$1.50 per foot		4,224,000.0	0.0	4,224,000.0	20.0	211,200
Fiber Ring-in-Ring Cable	\$0.75 per foot		0.0	2,640,000.0	2,640,000.0	20.0	132,000
Underground Ring-in-Ring Construc.	\$9.00 per foot		0.0	12,672,000.0	12,672,000.0	20.0	633,600
Aerial Ring-in-Ring Construction	\$1.50 per foot		0.0	3,168,000.0	3,168,000.0	20.0	158,400
Coaxial Feeder Cable	\$1.00 per foot		7,509,333.3	0.0	7,509,333.3	20.0	375,467
Underground Feeder Construction	\$9.00 per foot		27,033,600.0	0.0	27,033,600.0	20.0	1,351,680
Aerial Feeder Construction	\$1.50 per foot		6,758,400.0	0.0	6,758,400.0	20.0	337,920
Line Extenders	\$500.00 per unit	6.0 per mile	10,666,666.7	0.0	10,666,666.7	10.0	1,066,667
Line Extender Installation	\$200.00 per unit		4,266,666.7	0.0	4,266,666.7	10.0	426,667
Power Supply	\$30.00 per subscr.		7,800,000.0	0.0	7,800,000.0	7.5	1,040,000
Other Feeder Electronics	\$20.00 per subscr.		5,200,000.0	0.0	5,200,000.0	7.5	693,333
Other Feeder Electronics Installation	\$8.00 per subscr.		2,080,000.0	0.0	2,080,000.0	7.5	277,333
Drop Cable & Installation	\$80.00 per drop	40.0% of Sub-	8,320,000.0	0.0	8,320,000.0	10.0	2,080,000
Total Expenditures			\$109,074,667	\$32,880,000	\$141,954,667		\$13,645,067
Cost per Route Mile			\$24,541.80	\$7,398.00	\$31,939.80		\$3,070.14
Cost per Home Passed			272.69	82.20	354.89		34.11
Total Cost per Subscriber			\$419.52	\$126.46	\$545.98		\$52.48
Fiber & Laser Costs per Subscriber			32.00	65.54	97.54		15.95
Other Material Costs per Subscriber			151.91	0.00	151.91		20.21
Labor Costs per Subscriber			235.61	60.92	296.53		16.31

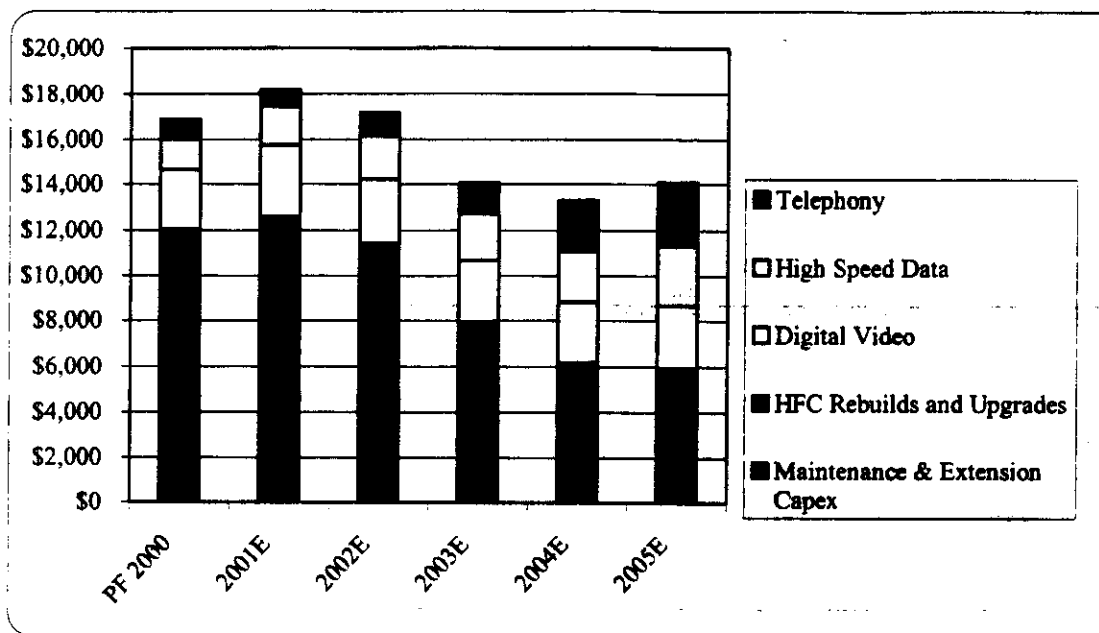
E= Morgan Stanley Research Estimates

Broadband Cable Television - April 5, 2002

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Exhibit 8

Broadband Service Provider Capital Expenditure Forecast, 2000-2006E



E = Morgan Stanley Research Estimates

Exhibit 9

Broadband Service Provider Capital Expenditure Forecast, 2000-2006E

Dollars in Millions

	2001	Pro Forma		2002E	2003E	2004E	2005E	2006E
		2000	2001E					
<u>Maintenance & Extension Capital Exp.</u>								
Adelphia	\$287.4	\$284.1	\$292.5	\$328.3	\$333.2	\$338.2	\$343.2	\$348.3
AT&T	1,306.4	1,652.4	1,505.7	1,275.5	1,356.8	1,447.1	1,538.3	1,630.3
Cablevision	256.7	252.4	256.7	286.4	319.0	356.2	397.7	423.9
Charter	755.4	598.8	755.4	692.4	710.8	729.7	739.2	748.2
Comcast	383.2	292.3	454.9	447.8	492.8	543.0	598.8	661.1
Cox Communications	348.0	289.1	348.0	399.8	403.9	361.2	398.2	404.1
AOL Time Warner	594.3	532.4	594.3	674.3	737.4	807.0	811.5	816.0
Insight Communications	56.5	41.8	56.5	51.3	56.1	61.4	67.5	77.0
Other Operators	831.3	650.9	831.3	830.4	881.3	926.5	983.6	1,030.8
Total Maintenance & Extension CapEx	\$4,851.7	\$4,621.1	\$5,127.8	\$5,016.4	\$5,326.7	\$5,607.2	\$5,917.5	\$6,184.1
<u>HFC Rebuilds and Upgrades</u>								
Adelphia	\$1,635.5	\$750.9	\$1,635.5	\$1,278.4	\$376.0	\$0.0	\$0.0	\$0.0
AT&T	400.0	1,000.0	400.0	1,084.9	1,006.8	542.9	0.0	0.0
Cablevision	759.2	548.5	759.2	708.4	100.0	0.0	0.0	0.0
Charter	1,525.0	1,712.1	1,525.0	1,150.0	50.0	0.0	0.0	0.0
Comcast	918.6	710.4	855.3	421.0	427.3	0.0	0.0	0.0
Cox Communications	942.9	1,084.3	942.9	728.9	408.2	0.0	0.0	0.0
AOL Time Warner	514.8	773.8	514.8	200.0	0.0	0.0	0.0	0.0
Insight Communications	146.3	150.2	146.3	110.9	33.8	0.0	0.0	0.0
Other Operators	883.8	699.3	883.8	936.8	941.5	946.2	950.9	955.7
Total HFC Rebuilds and Upgrades	\$7,726.0	\$7,429.5	\$7,662.7	\$6,619.3	\$3,343.5	\$1,489.1	\$950.9	\$955.7
<u>Digital Video Compression</u>								
Adelphia	\$390.1	\$239.3	\$390.1	\$360.2	\$371.6	\$352.6	\$310.7	\$270.0
AT&T	766.7	576.3	766.7	891.6	805.3	924.1	1,047.8	1,183.4
Cablevision	16.8	7.7	16.8	64.4	142.4	95.2	84.3	104.2
Charter	506.8	539.9	506.8	338.8	291.4	265.8	283.5	311.9
Comcast	319.1	259.6	319.1	247.7	237.8	246.4	245.9	240.2
Cox Communications	247.0	252.7	247.0	281.8	259.4	257.6	264.4	276.2
AOL Time Warner	768.0	599.1	768.0	489.5	448.8	362.3	369.5	387.5
Insight Communications	26.2	14.8	26.2	29.1	32.8	39.7	43.3	35.6
Other Operators	115.8	93.5	115.8	105.1	107.0	100.0	100.7	106.0
Total Digital Video Compression	\$3,156.6	\$2,582.9	\$3,156.6	\$2,808.2	\$2,696.5	\$2,643.6	\$2,750.2	\$2,914.9
<u>High Speed Cable Data</u>								
Adelphia	\$77.6	\$39.1	\$77.6	\$122.6	\$123.0	\$131.6	\$151.4	\$159.2
AT&T	387.6	333.3	387.6	526.5	655.4	792.1	938.8	1,115.5
Cablevision	78.9	97.0	78.9	71.6	69.6	70.6	73.8	77.7
Charter	245.6	126.6	245.6	294.7	285.9	322.6	359.0	424.7
Comcast	223.9	183.8	223.9	210.0	201.4	222.2	269.8	290.0
Cox Communications	150.0	177.6	150.0	162.1	182.2	205.6	234.1	254.0
AOL Time Warner	343.9	252.7	343.9	315.1	297.8	321.8	367.2	410.3
Insight Communications	30.4	21.8	30.4	27.2	37.1	42.7	49.5	59.6
Other Operators	154.1	123.9	154.1	167.0	178.5	200.3	229.5	260.2
Total High Speed Data	\$1,692.0	\$1,356.0	\$1,692.0	\$1,896.3	\$2,030.7	\$2,309.4	\$2,673.9	\$3,058.7
<u>Total Cable Television</u>								
Adelphia	\$2,390.6	\$1,313.3	\$2,395.7	\$2,089.4	\$1,203.8	\$822.3	\$805.3	\$777.6
AT&T	2,860.7	3,562.1	3,060.0	3,778.4	3,824.3	3,706.2	3,524.9	3,929.2
Cablevision	1,111.6	905.7	1,111.6	1,130.9	631.0	522.0	555.8	605.8
Charter	3,032.8	2,977.4	3,032.8	2,475.4	1,338.0	1,318.1	1,382.5	1,484.4
Comcast	1,844.9	1,446.1	1,853.3	1,326.5	1,359.3	1,011.5	1,114.5	1,191.3
Cox Communications	1,687.9	1,803.8	1,687.9	1,572.6	1,253.7	824.4	896.8	934.3
AOL Time Warner	2,221.0	2,158.0	2,221.0	1,679.0	1,484.0	1,491.1	1,548.3	1,613.8
Insight Communications	259.4	228.6	259.4	218.4	159.8	143.8	160.2	172.2
Other Operators	1,985.0	1,567.7	1,985.0	2,039.2	2,108.3	2,173.0	2,264.7	2,352.7
Sub Total Cable Television	\$17,393.9	\$15,962.6	\$17,606.7	\$16,310.0	\$13,362.2	\$12,012.4	\$12,253.0	\$13,061.1

E= Morgan Stanley Research Estimates

Broadband Cable Television – April 5, 2002

Please see the important disclosures at the end of this report.

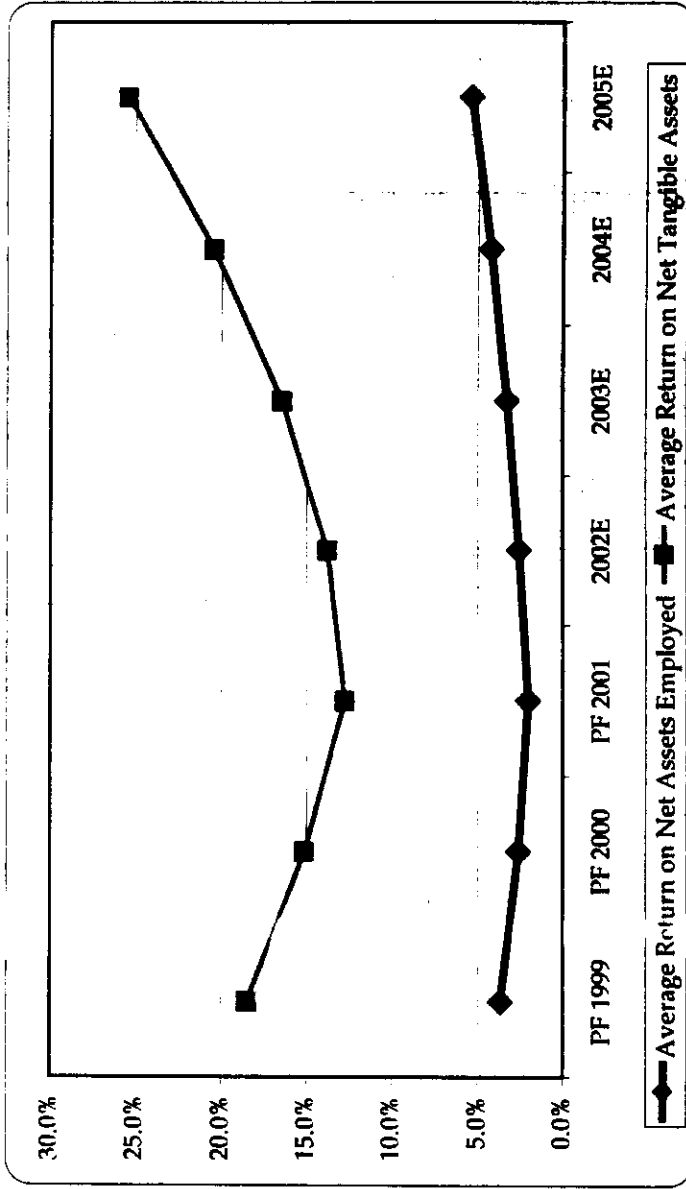
Exhibit 10

Broadband Cable Service Provider Capital Spending, 2000-2005E

Dollars in Millions	Pro Forma							
	2001	2000	2001E	2002E	2003E	2004E	2005E	2006E
Telephony(Residential)								
Adelphia	\$0.0	\$0.0	\$0.0	\$0.0	\$53.7	\$215.1	\$427.7	\$263.1
AT&T	451.0	633.9	451.0	650.3	789.1	902.0	624.1	600.9
Cablevision	57.4	7.4	57.4	62.6	28.0	44.1	56.9	61.3
Charter	0.0	0.0	0.0	5.5	29.0	117.8	143.0	261.1
Comcast	0.0	0.0	0.0	5.6	18.4	72.7	163.0	206.1
Cox Communications	196.5	234.4	196.5	144.6	138.4	154.8	170.2	159.4
AOL Time Warner	0.0	0.0	0.0	73.9	217.5	433.7	669.6	776.3
Insight Communications	NA	0.0	57.7	83.2	30.2	44.0	41.3	39.9
Other Operators	0.0	0.0	0.0	0.0	61.6	247.0	-491.6	302.7
Total Telephony	\$704.8	\$875.8	\$762.5	\$1,025.8	\$1,365.9	\$2,231.4	\$2,787.3	\$2,670.8
Total Capital Expenditures								
Adelphia	2,390.6	1,313.3	2,395.7	2,089.4	1,257.4	1,037.4	1,233.0	1,040.7
AT&T	3,311.7	4,196.0	3,511.0	4,428.7	4,613.4	4,608.2	4,149.0	4,530.1
Cablevision	1,169.0	913.2	1,169.0	1,193.5	659.1	566.1	612.7	667.1
Charter	3,032.8	2,977.4	3,032.8	2,481.0	1,367.1	1,435.9	1,525.5	1,745.5
Comcast	1,844.9	1,446.1	1,853.3	1,332.1	1,377.7	1,084.2	1,277.5	1,397.4
Cox Communications	1,884.4	2,038.2	1,884.4	1,717.2	1,392.2	979.2	1,067.0	1,093.6
AOL Time Warner	2,221.0	2,158.0	2,221.0	1,752.9	1,701.5	1,924.8	2,217.9	2,390.2
Insight Communications	317.0	228.6	317.0	301.6	190.0	187.9	201.5	212.1
Other US Operators	1,985.0	1,567.7	1,985.0	2,039.2	2,169.8	2,420.0	2,756.4	2,655.4
Total Cable + Telephony Capital Expenditures	\$18,156.4	\$16,838.4	\$18,369.2	\$17,335.8	\$14,728.1	\$14,243.7	\$15,040.4	\$15,731.9
		25.8%	9.1%	-5.6%	-15.0%	-3.3%	9.1%	4.6%

E= Morgan Stanley Research Estimates

Exhibit 11
Broadband Cable Industry: Return on Net Assets Employed and Return on Net Tangible Assets



E: Morgan Stanley Research Estimates

Exhibit 12
Selected North American Broadband Service Provider Trading Multiples

Dollars in Millions, Except Per Share

Enterprise Value
4/5/2002

Company	Ticker	Share Price	Fully Diluted Shares	Market Capitalization	2002E Debt	2002E Preferred Equity	Minority Interest	Cash	Unseal Assets	Enterprise Value
Adelphia Communications	ADLC	\$10.72	265.5	\$2,846.3	\$13,757.0	\$1,573.5	\$1,192.0	\$1,574.0	\$1,550.0	\$19,056.4
Cablevision Systems	CVC	28.00	188.3	5,273.6	6,763.0	1,544.3	199.9	328.8	863.6	12,788.4
Charter Communications (1)	CHTR	9.98	660.0	6,587.2	18,492.4	0.0	0.0	932.8	0.0	24,146.8
Comcast Corporation (1)	CMCSK	29.39	1,020.2	29,981.7	10,246.8	0.0	7,613.0	1,843.0	2,101.1	43,899.4
Cox Communications	COX	34.61	632.4	21,899.0	6,200.8	0.0	0.0	210.7	5,054.6	22,824.5
Height Communications	HCCI	18.52	65.4	1,210.4	2,378.0	0.0	1,637.5	216.6	4.6	5,504.6

EBITDA and EBITA Multiples
4/5/2002

Company	2002E	2003E	2004E	Enterprise Value / EBITDA			Enterprise Value / EBITA			2007 EBITA CAGR
				2002E	2003E	2004E	2002E	2003E	2004E	
Adelphia Communications	\$1,648.0	\$1,856.4	\$2,075.7	11.6x	10.3x	9.2x	\$484.1	\$526.0	\$1,032.5	22.0%
Cablevision Systems	806.5	1,061.6	1,212.0	14.4x	12.0x	10.6x	58.7	179.5	324.0	39.5x
Charter Communications (1)	2,082.1	2,361.7	2,715.0	11.0x	10.2x	8.9x	237.4	299.8	1,238.2	71.2x
Comcast Corporation (1)	3,406.7	3,947.2	4,472.2	12.9x	11.1x	9.8x	2,045.1	2,510.1	2,995.6	101.7x
Cox Communications	1,788.7	2,079.0	2,448.2	12.8x	11.0x	9.3x	408.7	608.7	939.1	21.5x
Height Communications	361.0	418.9	489.5	15.2x	13.1x	11.2x	162.0	210.4	279.4	37.5x
Sector Average (2)				12.6x	10.9x	9.6x	33.7x			25.5x
Sector Average (2)				18.8x			18.8x			18.8x

Cash EPS Multiples
4/5/2002

Company	2002E	2003E	2004E	2005E	2006E	2007E	Net Share Price / Cash EPS			2007 EBITA CAGR
							2002E	2003E	2004E	
Adelphia Communications	\$10.72	\$10.72	\$10.14	\$10.14	\$10.14	\$10.14	\$0.05	\$0.05	\$1.14	22.0%
Cablevision Systems	28.00	28.00	23.41	(52.71)	(52.71)	(52.71)	(52.71)	(52.71)	\$0.00	39.5%
Charter Communications (1)	9.98	9.98	9.98	(51.45)	(51.45)	(51.45)	(50.79)	(50.79)	\$1.01	71.2%
Comcast Corporation (1)	29.39	29.39	27.33	\$0.55	\$0.55	\$0.55	\$1.10	\$1.10	\$2.37	101.7%
Cox Communications	34.61	34.61	34.61	(50.03)	(50.03)	(50.03)	\$0.58	\$0.58	\$1.43	21.5%
Height Communications	18.52	18.52	18.45	(50.49)	(50.49)	(50.49)	\$0.17	\$0.17	\$0.55	37.5%
Sector Average (2)				18.4x	18.4x	18.4x	33.7x			25.5x
Sector Average (2)				18.8x			18.8x			18.8x

Source: Morgan Stanley Dean Witter Research

(1) Market Capitalization based on per share shares outstanding

F: Morgan Stanley Research Estimates

Exhibit 13

Telecommunications Revenue Breakout by Cable Operator, 2000-2006E

Dollars in Millions	Pro Forma						
	2000	2001	2002E	2003E	2004E	2005E	2006E
Regulated Analog Revenue							
Adelphia	\$2,285.9	\$2,376.9	\$2,520.8	\$2,652.6	\$2,791.0	\$2,936.5	\$3,089.9
AT&T	5,122.7	5,408.4	5,679.8	5,993.6	6,324.7	6,674.2	7,042.9
Cablevision	1,166.6	1,257.6	1,336.9	1,407.6	1,494.8	1,587.5	1,685.9
Charter Communications	2,613.2	2,721.3	2,863.4	3,013.6	3,180.1	3,355.8	3,541.2
Comcast	3,434.4	3,617.7	3,801.6	4,029.4	4,270.0	4,524.1	4,792.4
Cox Communications	2,301.0	2,412.5	2,520.6	2,671.7	2,825.0	2,987.0	3,158.3
Insight Communications	474.6	479.4	510.3	536.9	566.2	597.1	629.6
AOL Time Warner	3,906.4	4,131.4	4,372.1	4,613.9	4,868.0	5,135.4	5,416.8
US CATV Industry Revenue	\$21,304.7	\$22,405.1	\$23,605.4	\$24,919.3	\$26,319.7	\$27,797.5	\$29,356.9
Growth Rate	7.1%	5.2%	5.4%	5.6%	5.6%	5.6%	5.6%
Premium, Non-regulated and Other Revenue							
Adelphia	\$478.9	\$509.5	\$518.2	\$567.3	\$646.5	\$699.9	\$731.7
AT&T	2,093.8	1,991.3	2,010.9	2,138.4	2,274.7	2,419.3	2,568.0
Cablevision	688.4	678.6	673.7	717.5	743.0	768.4	799.8
Charter Communications	847.4	992.9	1,095.1	1,255.8	1,394.6	1,535.8	1,692.8
Comcast	1,058.9	1,053.7	1,109.8	1,203.1	1,313.1	1,435.1	1,568.6
Cox Communications	845.5	853.2	933.1	1,018.0	1,121.5	1,237.3	1,365.7
Insight Communications	163.8	141.5	147.5	161.0	178.5	203.9	230.6
AOL Time Warner	1,686.2	1,868.8	1,901.1	2,053.8	2,213.9	2,374.2	2,565.0
US CATV Industry Revenue	\$7,862.8	\$8,089.5	\$8,389.5	\$9,114.8	\$9,885.7	\$10,674.0	\$11,522.2
Growth Rate	22.5%	2.9%	3.7%	8.6%	8.5%	8.0%	7.9%
Digital Video Revenue							
Adelphia	\$49.9	\$195.7	\$319.3	\$433.5	\$546.9	\$640.4	\$711.8
AT&T	319.3	468.2	671.5	847.1	1,003.6	1,154.8	1,299.3
Cablevision	0.0	1.1	21.3	88.7	162.9	234.5	319.9
Charter Communications	82.1	241.9	371.0	477.0	577.7	677.1	785.8
Comcast	136.9	244.9	346.4	446.4	544.1	640.0	732.5
Cox Communications	74.0	161.1	252.6	357.8	458.5	558.8	658.7
Insight Communications	13.6	47.1	71.5	102.3	138.6	180.7	219.5
AOL Time Warner	158.6	352.6	560.2	788.7	999.8	1,183.4	1,358.5
US CATV Industry Revenue	\$834.5	\$1,712.6	\$2,613.9	\$3,541.5	\$4,432.1	\$5,269.7	\$6,085.9
Growth Rate	156.2%	105.2%	52.6%	35.5%	25.1%	18.9%	15.5%
HSCDS Revenue							
Adelphia	\$38.0	\$83.2	\$212.8	\$422.9	\$611.7	\$819.0	\$1,028.6
AT&T	294.8	590.2	1,029.9	1,527.1	2,212.8	2,928.0	3,625.0
Cablevision	40.1	129.4	267.8	410.2	538.2	663.1	786.8
Charter Communications	68.2	158.7	364.0	619.7	873.0	1,142.8	1,432.4
Comcast	134.1	300.5	577.1	912.8	1,207.7	1,529.6	1,881.8
Cox Communications	204.1	387.1	552.4	826.5	1,107.4	1,401.1	1,695.5
Insight Communications	15.4	35.8	57.4	105.7	156.9	212.3	272.5
AOL Time Warner	302.8	639.3	1,184.8	1,678.6	2,123.8	2,553.4	2,941.6
US CATV Industry Revenue	\$1,097.6	\$2,324.8	\$4,246.1	\$6,505.4	\$8,831.9	\$11,249.3	\$13,664.1
Growth Rate	201.8%	111.8%	82.6%	53.2%	35.8%	27.4%	21.5%
Total Revenue - Analog, Digital, & Data							
Adelphia	\$2,852.6	\$3,165.3	\$3,571.1	\$4,076.4	\$4,596.1	\$5,095.8	\$5,562.0
AT&T	7,830.7	8,458.0	9,392.1	10,506.2	11,815.8	13,176.3	14,535.2
Cablevision	1,895.2	2,066.7	2,299.7	2,624.0	2,938.9	3,253.4	3,592.3
Charter Communications	3,610.8	4,114.8	4,693.5	5,366.0	6,025.3	6,711.4	7,452.2
Comcast	4,764.2	5,216.9	5,834.9	6,591.7	7,334.9	8,128.8	8,975.3
Cox Communications	3,424.7	3,814.5	4,258.7	4,875.9	5,512.9	6,184.3	6,878.1
Insight Communications	667.4	703.9	786.8	905.9	1,040.1	1,194.0	1,352.1
AOL Time Warner	6,054.0	6,992.0	8,018.2	9,135.1	10,205.4	11,246.4	12,281.8
US CATV Industry Revenue	\$31,099.6	\$34,532.0	\$38,854.9	\$44,081.1	\$49,469.5	\$54,990.4	\$60,629.0
Growth Rate	25.4%	11.0%	12.5%	13.5%	12.2%	11.2%	10.3%

E = Morgan Stanley Research Estimates

Broadband Cable Television - April 5, 2002

Please see the important disclosures at the end of this report.

Exhibit 14

Telecommunications Revenue Breakout by Cable Operator, 2000-2006E (continued)

Dollars in Millions

	Pro Forma						
	2000	2001	2002E	2003E	2004E	2005E	2006E
Residential Telephony Revenue							
Adelphia	\$0.0	\$0.0	\$0.0	\$8.5	\$63.7	\$225.8	\$472.6
AT&T	137.0	495.0	844.7	1,294.5	1,806.6	2,294.5	2,681.5
Cablevision	4.0	10.8	14.0	26.4	57.9	107.7	165.8
Charter Communications	0.0	0.0	1.7	13.0	63.0	161.5	332.1
Comcast	0.0	0.0	3.9	21.0	88.3	270.0	560.5
Cox Communications	106.1	207.9	320.3	433.7	549.4	683.3	807.3
Insight Communications	0.0	0.7	6.8	21.2	42.9	66.2	88.2
AOL Time Warner	0.0	0.0	0.0	34.1	172.6	512.3	1,122.5
US CATV Industry Revenue	\$247.1	\$714.4	\$1,191.9	\$1,852.3	\$2,844.3	\$4,321.3	\$6,230.6
Growth Rate	169.8%	189.1%	66.7%	55.5%	53.6%	51.9%	44.2%
Total Residential Telecommunications Revenue							
Adelphia	\$2,852.6	\$3,165.3	\$3,571.1	\$4,084.9	\$4,659.8	\$5,321.7	\$6,034.6
AT&T Broadband	7,967.7	8,953.0	10,236.8	11,800.7	13,622.4	15,470.8	17,216.7
Cablevision	1,899.2	2,077.5	2,313.7	2,650.4	2,996.8	3,361.1	3,758.2
Charter Communications	3,610.8	4,114.8	4,695.1	5,379.0	6,088.3	6,872.9	7,784.3
Comcast	4,764.2	5,216.9	5,838.7	6,612.7	7,423.2	8,398.8	9,535.8
Cox Communications	3,530.8	4,022.4	4,579.0	5,309.5	6,062.3	6,847.5	7,685.3
Insight Communications	667.4	704.6	793.5	927.1	1,083.1	1,260.2	1,440.4
AOL Time Warner	6,054.0	6,992.0	8,018.2	9,169.3	10,378.0	11,758.7	13,404.4
US CATV Industry Revenue	31,346.8	35,246.4	40,046.2	45,933.4	52,312.8	59,311.7	66,859.7
Growth Rate	26.0%	12.4%	13.6%	14.7%	13.9%	13.4%	12.7%
Commercial Telephony Revenue							
Adelphia Business Solutions	10.0	25.0	30.7	32.3	33.9	35.6	37.4
AT&T Broadband	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cablevision Lightpath	95.6	131.2	142.9	168.0	197.2	217.7	242.7
Charter Communications	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Comcast Business Communications	39.2	38.6	42.0	59.2	80.3	102.1	127.0
Cox Business Services	97.8	144.3	185.3	231.0	279.2	317.3	354.6
Insight Communications	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time Warner Telecom (1)	460.0	692.1	735.4	897.4	1,135.2	1,348.6	1,554.2
US CATV Industry Revenue	702.7	1,031.1	1,136.3	1,388.0	1,725.7	2,021.3	2,315.8
Growth Rate	20.6%	46.7%	10.2%	22.1%	24.3%	17.1%	14.6%
Total Telecommunications Revenues							
Adelphia	2,862.6	3,190.3	3,601.9	4,117.2	4,693.7	5,357.3	6,072.0
AT&T Broadband	7,967.7	8,953.0	10,236.8	11,800.7	13,622.4	15,470.8	17,216.7
Cablevision	1,994.8	2,208.7	2,456.6	2,818.4	3,193.9	3,578.9	4,000.8
Charter Communications	3,610.8	4,114.8	4,695.1	5,379.0	6,088.3	6,872.9	7,784.3
Comcast	4,803.4	5,255.5	5,880.8	6,671.9	7,503.4	8,500.8	9,662.7
Cox Communications	3,628.6	4,166.7	4,764.3	5,540.6	6,341.5	7,184.9	8,039.9
Insight Communications	667.4	704.6	793.5	927.1	1,083.1	1,260.2	1,440.4
AOL Time Warner	6,514.0	7,684.1	8,753.6	10,066.6	11,513.2	13,107.3	14,958.6
US CATV Industry Revenue	32,049.4	36,277.6	41,182.5	47,321.4	54,039.5	61,333.1	69,175.5
Growth Rate	25.9%	13.2%	13.5%	14.9%	14.2%	13.5%	12.8%

E= Morgan Stanley Research Estimates

Note: For comparative purposes, we have consolidated Time Warner Telecom in AOL Time Warner

Exhibit 15

Telecommunications Monthly Revenue per Basic Subscriber

	Pro Forma						
	2000	2001E	2002E	2003E	2004E	2005E	2006E
Regulated Revenue							
Adelphia	\$33.09	\$34.14	\$36.07	\$37.80	\$39.60	\$41.50	\$43.49
AT&T	31.18	33.06	34.82	36.56	38.39	40.31	42.32
Cablevision	33.12	35.11	36.86	38.34	40.25	42.27	44.38
Charter	31.07	32.13	34.00	35.36	37.13	38.99	40.94
Comcast	34.49	35.77	37.22	39.08	41.04	43.09	45.24
Cox Communications	31.22	32.42	33.64	35.32	37.09	38.94	40.89
AOL Time Warner	29.40	30.87	32.41	34.03	35.74	37.52	39.40
Insight Communications	31.10	31.26	32.96	34.34	35.88	37.50	39.18
Average	\$31.83	\$33.09	\$34.75	\$36.35	\$38.14	\$40.01	\$41.98
Premium, PPV & Other							
Adelphia	\$4.65	\$5.13	\$5.36	\$5.92	\$6.85	\$7.39	\$7.61
AT&T	\$9.01	\$8.64	\$8.71	\$9.16	\$9.63	\$10.22	\$10.82
Cablevision	17.30	16.83	16.71	17.27	17.56	17.83	18.23
Charter	8.44	8.40	9.79	11.19	12.36	13.61	15.01
Comcast	7.43	7.12	7.62	7.97	8.64	9.39	10.21
Cox Communications	6.69	6.93	7.78	8.44	9.33	10.33	11.44
AOL Time Warner	8.90	8.99	9.19	9.90	10.64	11.34	12.23
Insight Communications	7.64	6.17	6.47	6.93	7.21	8.93	10.19
Average	\$8.76	\$8.53	\$8.95	\$9.60	\$10.34	\$11.13	\$11.97
Advertising Revenue							
Adelphia	\$2.17	\$2.18	\$2.06	\$2.16	\$2.32	\$2.50	\$2.69
AT&T	3.74	3.71	3.62	3.89	4.18	4.39	4.61
Cablevision	2.24	2.12	2.12	2.27	2.45	2.63	2.83
Charter	3.23	3.99	3.85	4.23	4.66	5.01	5.38
Comcast	3.20	3.29	3.25	3.70	3.98	4.28	4.60
Cox Communications	4.79	4.54	4.67	5.02	5.40	5.80	6.24
AOL Time Warner	3.79	4.97	4.91	5.25	5.62	6.01	6.43
Insight Communications	3.09	3.06	3.06	3.37	3.60	3.87	4.17
Average	\$3.28	\$3.48	\$3.44	\$3.74	\$4.03	\$4.31	\$4.62
Digital Video Tier Revenue							
Adelphia	\$0.72	\$2.81	\$4.57	\$6.18	\$7.76	\$9.05	\$10.02
AT&T	1.94	2.86	4.12	5.17	6.09	6.97	7.81
Cablevision	0.00	0.03	0.59	2.42	4.39	6.24	8.42
Charter	1.01	2.90	4.47	5.67	6.84	7.97	9.21
Comcast	1.31	2.42	3.39	4.33	5.23	6.10	6.91
Cox Communications	1.00	2.17	3.37	4.73	6.02	7.29	8.53
AOL Time Warner	1.19	2.63	4.15	5.82	7.34	8.65	9.88
Insight Communications	0.89	3.07	4.62	6.54	8.78	11.35	13.66
Average	\$1.01	\$2.36	\$3.66	\$5.11	\$6.56	\$7.95	\$9.30
Cable Modem Revenue							
Adelphia	\$0.55	\$1.20	\$3.04	\$6.03	\$8.68	\$11.57	\$14.48
AT&T	1.74	3.61	6.31	9.57	13.47	17.68	21.75
Cablevision	1.14	3.61	7.38	11.17	14.49	17.66	20.71
Charter	0.84	1.90	4.38	7.37	10.33	13.46	16.78
Comcast	1.35	2.97	5.65	8.85	11.61	14.57	17.76
Cox Communications	2.77	5.21	7.37	10.95	14.55	18.27	21.95
AOL Time Warner	2.28	4.78	8.78	12.38	15.59	18.66	21.40
Insight Communications	1.01	2.34	3.71	6.76	9.94	13.33	16.96
Average	\$1.47	\$3.20	\$5.83	\$9.10	\$12.33	\$15.65	\$18.98
Total Revenue (excl. telephony)							
Adelphia	41.17	45.46	51.10	58.08	65.21	72.01	78.28
AT&T	47.67	51.89	57.58	64.08	71.71	79.57	87.34
Cablevision	53.80	57.70	63.66	71.47	79.14	86.62	94.57
Charter	44.60	49.31	56.49	63.83	71.31	79.04	87.32
Comcast	47.78	51.58	57.13	63.93	70.49	77.42	84.73
Cox Communications	46.47	51.26	56.83	64.46	72.37	80.62	89.05
AOL Time Warner	45.56	52.24	59.44	67.38	74.92	82.17	89.33
Insight Communications	43.73	45.90	50.82	57.95	65.91	74.98	84.15
Average	\$46.35	\$50.67	\$56.63	\$63.90	\$71.38	\$79.06	\$86.85

E= Morgan Stanley Research Estimates

Broadband Cable Television - April 5, 2002

Please see the important disclosures at the end of this report.

Exhibit 16

Telecommunications Monthly Revenue per Basic Subscriber (continued)

	Pro Forma						
	2000	2001E	2002E	2003E	2004E	2005E	2006E
Residential Telephony Revenue							
Adelphia	\$0.00	\$0.00	\$0.00	\$0.12	\$0.90	\$3.19	\$6.65
AT&T	0.83	3.03	5.18	7.90	10.96	13.86	16.11
Cablevision	0.11	0.30	0.39	0.72	1.56	2.87	4.37
Charter	0.00	0.00	0.02	0.15	0.75	1.90	3.89
Comcast	0.00	0.00	0.04	0.20	0.85	2.57	5.29
Cox Communications	1.44	2.79	4.27	5.73	7.21	8.91	10.45
AOL Time Warner	0.00	0.00	0.00	0.25	1.27	3.74	8.16
Insight Communications	0.00	0.05	0.44	1.36	2.72	4.16	5.49
Average	\$0.30	\$0.77	\$1.29	\$2.05	\$3.28	\$5.15	\$7.55
Total Revenue (incl. teleph.)							
Adelphia	\$41.17	\$45.46	\$51.10	\$58.20	\$66.12	\$75.20	\$84.93
AT&T	48.50	54.91	62.75	71.98	82.68	93.43	103.46
Cablevision	53.91	58.00	64.05	72.19	80.70	89.49	98.93
Charter	44.60	49.31	56.51	63.98	72.06	80.94	91.22
Comcast	47.78	51.58	57.17	64.14	71.34	79.99	90.02
Cox Communications	47.91	54.06	61.11	70.19	79.59	89.53	99.50
AOL Time Warner	45.56	52.24	59.44	67.64	76.19	85.92	97.50
Insight Communications	43.73	45.95	51.26	59.30	68.63	79.14	89.64
Average	\$46.65	\$51.44	\$57.92	\$65.95	\$74.66	\$84.20	\$94.40

E = Morgan Stanley Research Estimates

Exhibit 17

Telecommunications EBITDA Breakout by Cable Operator, 2000-2006E

Dollars in Millions

	Pro Forma						
	2000	2001	2002E	2003E	2004E	2005E	2006E
EBITDA - Excl. Telephony							
Analog Video, Digital Video, & Data							
Adelphia	\$1,311.9	\$1,456.2	\$1,635.4	\$1,859.7	\$2,094.0	\$2,310.5	\$2,514.5
AT&T	2,430.5	2,556.8	3,108.2	3,727.1	4,699.0	5,585.3	6,392.2
Cablevision	752.9	804.9	899.1	1,029.8	1,177.7	1,321.0	1,473.7
Charter Communications	1,722.2	1,900.1	2,155.7	2,456.9	2,832.3	3,200.7	3,564.0
Comcast	2,005.1	2,247.6	2,558.1	2,921.6	3,287.3	3,667.8	4,077.0
Cox Communications	1,381.9	1,482.8	1,638.7	1,864.8	2,163.0	2,475.5	2,798.6
Insight Communications	318.2	334.3	370.3	417.6	475.7	545.6	616.0
AOL Time Warner	2,831.0	3,199.0	3,658.4	4,162.9	4,715.1	5,191.6	5,651.1
US CATV Industry EBITDA	12,753.6	13,981.7	16,023.9	18,440.4	21,444.2	24,298.0	27,087.2
Growth Rate		9.6%	14.6%	15.1%	16.3%	13.3%	11.5%
Growth Rate - Excluding AT&T		10.7%	13.0%	13.9%	13.8%	11.8%	10.6%
Total EBITDA							
Analog, Digital, Data and Residential Telephony							
Adelphia	\$1,311.9	\$1,456.2	\$1,635.4	\$1,843.2	\$2,061.9	\$2,281.2	\$2,579.6
AT&T	1,908.4	2,186.3	3,156.5	4,050.7	5,311.4	6,486.5	7,484.2
Cablevision	739.2	797.6	892.4	1,021.7	1,174.4	1,333.0	1,511.4
Charter Communications	1,722.2	1,900.1	2,152.1	2,441.7	2,804.9	3,200.9	3,600.1
Comcast	2,005.1	2,247.6	2,546.2	2,899.7	3,265.6	3,677.0	4,193.4
Cox Communications	1,364.7	1,523.5	1,722.0	1,995.7	2,346.1	2,719.4	3,108.7
Insight Communications	318.2	334.3	377.0	435.4	506.5	588.2	673.6
AOL Time Warner	2,831.0	3,199.0	3,658.4	4,137.4	4,709.3	5,243.4	5,868.6
US CATV Industry EBITDA	12,200.7	13,644.6	16,140.0	18,825.4	22,180.0	25,529.7	29,019.6
Growth Rate		11.8%	18.3%	16.6%	17.8%	15.1%	13.7%
Growth Rate - Excluding AT&T		11.3%	13.3%	13.8%	14.2%	12.9%	13.1%
Total EBITDA							
Analog, Dig., Data and Res. & Commercial Teleph.							
Adelphia	\$1,205.7	\$1,406.2	\$1,648.0	\$1,856.4	\$2,075.7	\$2,295.7	\$2,594.9
AT&T	1,908.4	2,186.3	3,156.5	4,050.7	5,311.4	6,486.5	7,484.2
Cablevision	770.2	829.9	942.1	1,082.4	1,248.4	1,416.4	1,608.1
Charter Communications	1,722.2	1,900.1	2,152.1	2,441.7	2,804.9	3,200.9	3,600.1
Comcast	1,935.0	2,103.8	2,499.9	2,861.4	3,239.1	3,667.7	4,195.3
Cox Communications	1,403.1	1,569.0	1,788.7	2,079.0	2,448.2	2,837.9	3,243.9
Insight Communications	318.2	334.3	377.0	435.4	506.5	588.2	673.6
AOL Time Warner	2,935.3	3,341.4	3,833.4	4,388.9	5,075.9	5,725.5	6,465.3
US CATV Industry EBITDA	12,198.1	13,671.1	16,397.6	19,195.7	22,710.0	26,218.8	29,865.4
Growth Rate		12.1%	19.9%	17.1%	18.3%	15.5%	13.9%
Growth Rate - Excluding AT&T		11.6%	15.3%	14.4%	14.9%	13.4%	13.4%

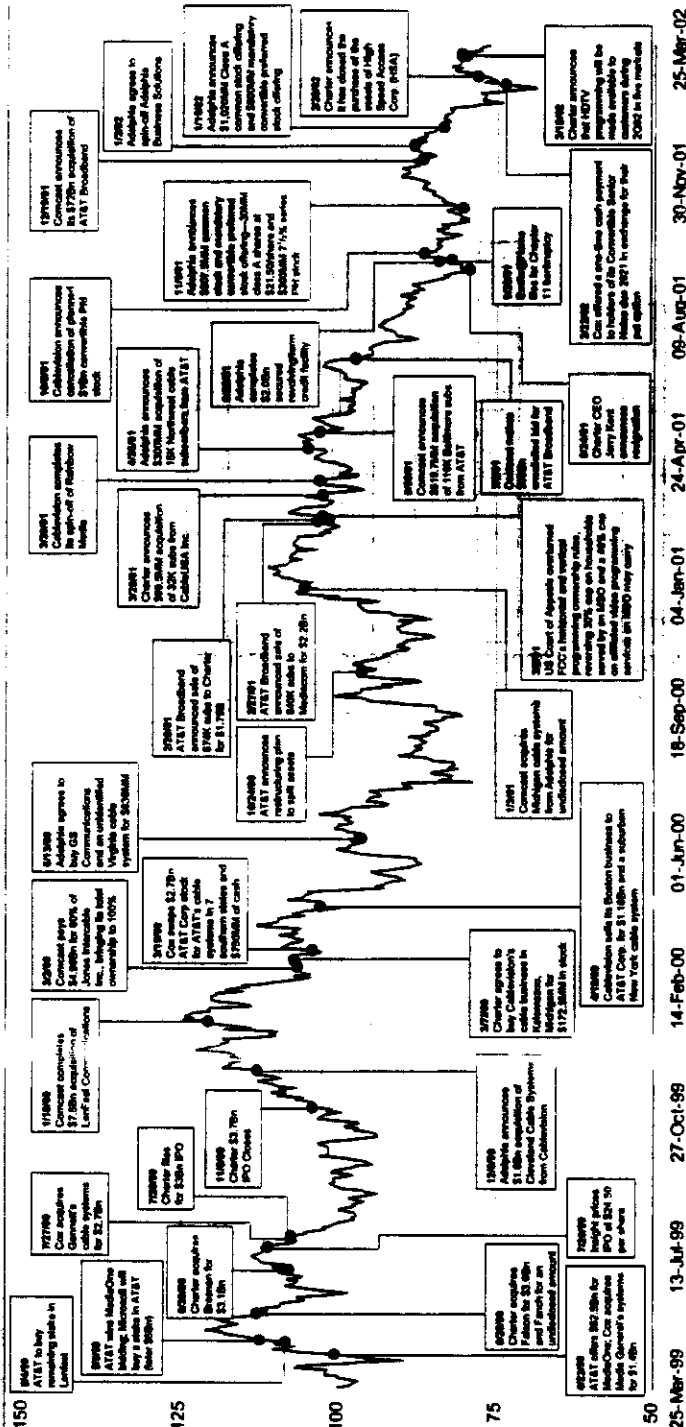
E= Morgan Stanley Research Estimates

Note: For comparative purposes, we have consolidated Time Warner Telecom in AOL Time Warner

Exhibit 18

US Sector Trading Levels

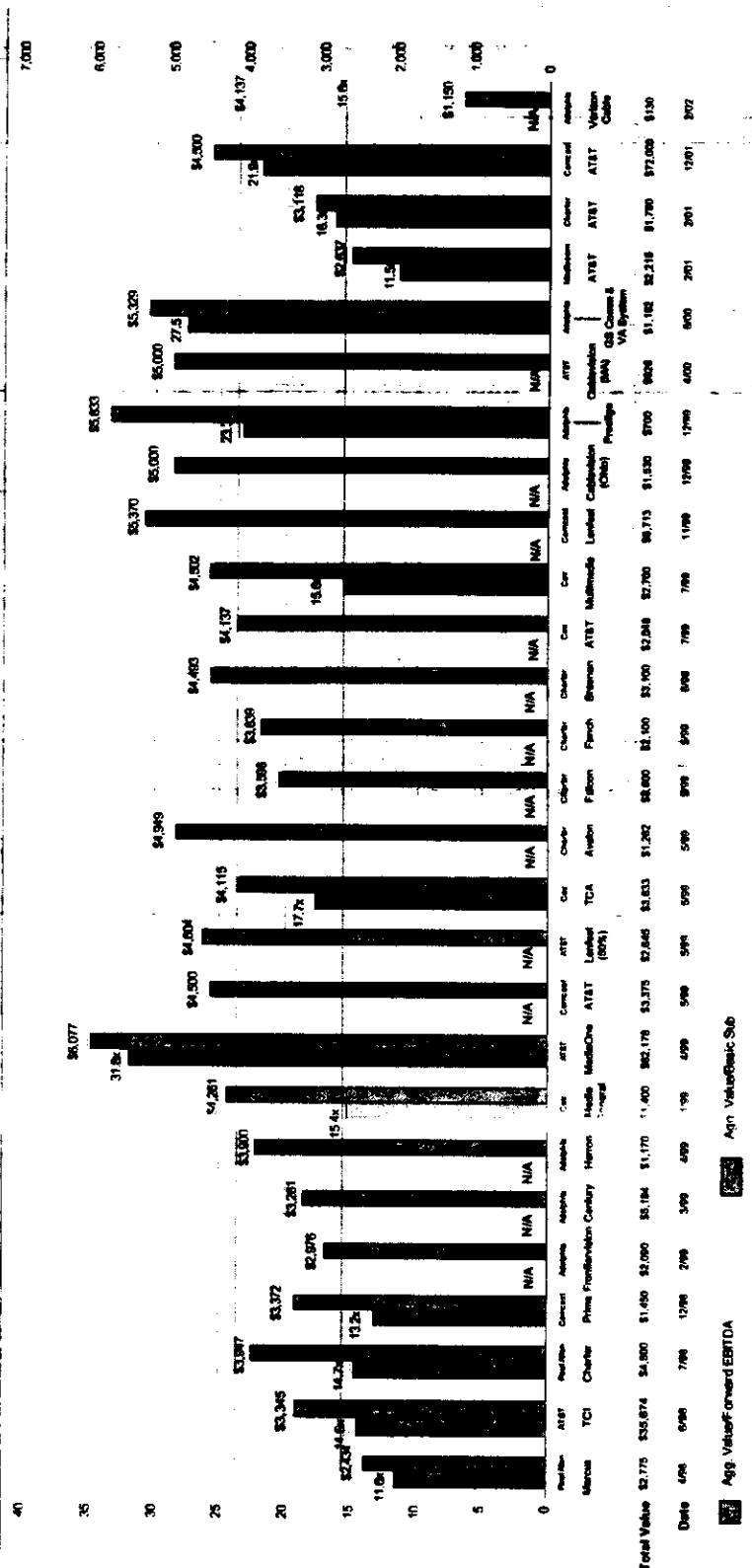
Cable Industry Stock Price Growth Indexed Price Comparison Last Three Years



U.S. Cable Composite⁽¹⁾

Source: Morgan Stanley Research

Precedent Transaction Analysis



Note:
• Assumes a 35% EBITDA Margin

Source: Morgan Stanley Research

Digital Video and Video-on-Demand Update

Summary and Investment Conclusion

We expect the US cable industry to add 5.5 million digital cable subscribers in 2002, down about 6-7% from 2001 net additions of 5.8 million. This would represent an increase in penetration of basic subscribers from 21% at the end of 2001 to 28% at the end of 2002 for the cable industry. Our expectation is that 45-50% of the 70-72 million basic cable subscribers in 2005 will take digital video service. The industry reaches this digital penetration rate, we believe, with declining additions of approximately 10-15% per year until 2005.

Exhibit 20

Evolution of Our Digital Subscriber Forecasts

2002 Estimates	Preview Published In:					
	Jan. 01	Apr. 01	July 01	Oct. 01	Jan. 02	Current
Adelphia (1)	1,647	1,648	1,766	1,923	1,914	2,139
AT&T	5,269	4,429	4,424	4,560	4,454	4,477
Cablevision	584	339	333	283	283	145
Charter	2,537	2,770	2,770	2,871	2,781	2,780
Comcast (1)	2,182	2,175	2,258	2,322	2,390	2,398
Cox	1,808	1,817	1,817	1,837	1,891	2,009
Insight	405	406	406	420	420	370
Time Warner	4,657	4,210	4,343	4,343	4,352	4,254
Total	19,089	17,794	18,118	18,559	18,485	18,591

2003 Estimates	Preview Published In:					
	Jan. 01	Apr. 01	July 01	Oct. 01	Jan. 02	Current
Adelphia (1)	1,906	1,916	2,046	2,346	2,368	2,771
AT&T	6,283	5,208	5,205	5,362	5,135	5,215
Cablevision	867	605	596	472	472	466
Charter	3,047	3,231	3,231	3,422	3,403	3,308
Comcast (1)	2,584	2,566	2,656	2,750	2,799	2,839
Cox	2,259	2,255	2,255	2,264	2,364	2,535
Insight	525	526	527	532	524	494
Time Warner	5,730	5,385	5,577	5,577	5,615	5,441
Total	23,201	21,692	22,093	22,725	22,680	23,067

(1) Both ADLAC and CMCSK report digital boxes. We have converted these to digital subscribers assuming 1.25 boxes per subscriber.

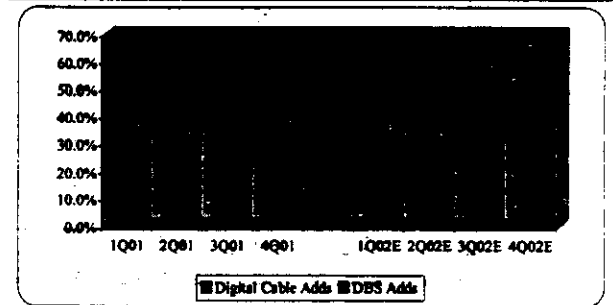
Source: Morgan Stanley Research Estimates

To evaluate the 50% penetration expected by 2005, we believe premium services are a strong proxy for demand. Premium unit penetration of basic has peaked at about 70-80% for most cable operators. However, because cable subscribers who receive premium services receive more than one service, only about 35-40% of basic subscribers take a premium service. In effect, our 50% forecast implies that some subscribers who have not historically opted for premium channels will upgrade to digital.

Not all operators are demonstrating the same new RGU (revenue generating unit) growth profile. We believe that Cox's guidance for slightly improving RGU additions in 2002 implies that digital additions would be flat, at worst, with 2001 levels and possibly higher. We forecast just fewer than 16 million digital video subscribers by the end of 1Q02, representing additions of 1.34 million during the quarter, which compares to 1.62 million in 1Q01, or a 17% decline. By the end of 2002, we expect that more than 90% of total cable homes passed will be upgraded for digital services.

Exhibit 21

Looking at Digital Cable and DBS Additions...



Source: Morgan Stanley Research Estimates

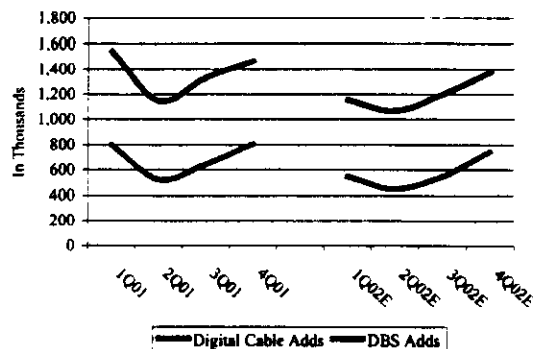
Danger of Sequential Growth Metrics

Digital cable is now the de facto video product for most cable operators in markets where digital is available. As a result, digital growth is demonstrating the same seasonal factors as basic growth has shown over the years. For this reason, sequential growth in absolute subscribers is very misleading. Most operators have seen that the basic growth has historically shown a 40%-10%-10%-40% quarterly pattern with respect to percentage of total annual additions.

Exhibit 22 shows 2001's quarterly additions for digital cable and DBS, as well as our forecast for 2002 by quarter. We are using Morgan Stanley satellite analyst Vijay Jayant's estimates for DBS.

Exhibit 22

Beware of Sequential Growth Metrics...



Source: Morgan Stanley Research Estimates

As the exhibit indicates, there is no linear trend throughout the year with regard to digital additions. Each MSO shows slightly different trends depending on the location and demographic of its systems. Finally, various marketing and promotional campaigns should continue to affect seasonal trends for the next several years. However, the critical lesson, in our view, is that sequential growth is *not* a good proxy for product demand. Ideally, one would want to analyze year-over-year growth in stable markets where a new digital footprint is not being added.

What to Watch for in 2002...

For all cable operators, 2002, we believe, will be a critical year in the VOD (video-on-demand) and S-VOD (subscription video-on-demand) rollout. The cable operators have all announced trials, and many have deployed VOD or S-VOD to entire markets. While final pricing has not yet been determined, VOD and S-VOD will allow the MSOs to differentiate themselves from the DBS operators. MSOs have conducted trials of multiple price points with movies, comparable to video rental prices, and with S-VOD prices ranging from \$0 (i.e., included with digital service) to \$10 per month, depending on the content. The MSOs also hope to use the products to lower churn on the digital product and to get basic-only subscribers to upgrade to digital. Charter, for example, has indicated that in its Los Angeles system, where VOD has been offered for over 18 months, churn has decreased from an average of 6-8% to less than 4%.

While poor windows on new movie releases remains an issue, MSOs have realized that full-length movies are not necessarily the only compelling source of on-demand content. The companies are considering packaging non-movie

content such as children's shows. In several of its VOD-enabled markets, Charter already offers a subscription-based package of children's programming for about \$9.95 per month.

Exhibit 23

S-VOD Launches

MSO, City	Launch Date	Networks Launched	Price
Adelphia - Cleveland	Sept 2001	HBO, Starz, Showtime	Free w/ digital purchase
Cablevision - Long Island	Sept 2001	HBO, Starz, Showtime	Free w/ digital purchase
Time Warner - Columbia S.C.	July 2001	HBO	\$3.95/month
- Austin, TX	Nov 2001	HBO	\$6.95/month
- Cincinnati	Jan 2002	HBO	\$9.95/month

Source: Multichannel News

Many basic networks are expected to test VOD and/or S-VOD during the year. Networks such as A&E, MTV Networks, ESPN, Discovery Networks, and BBC America have signed deals with certain MSOs to launch the service at some point this year. It is still unclear how the VOD business model for basic networks will work. There have been concerns that the service will cannibalize ratings and advertising revenue from the existing basic networks. Other outstanding issues include pricing, packaging, and the decision of whether to include advertisements.

For Cablevision, 2002 will be a critical year for the digital rollout, in our opinion. The company launched its digital service on September 28, 2001, and ended the year with just over 17,000 customers. The company gave guidance of 125,000-150,000 customers by the end of 2002. It will be important for the company to launch other markets during the year (Nassau County and part of Westchester County already have the service). We believe the lack of a digital product over the past couple of years has adversely affected the company's basic customer growth. Difficulties in rolling out digital service at Cablevision could be partially related to its technology platform, which is based on Harmonic (HLIT, NR) digital head-ends and transmission equipment and Sony digital set-top boxes. Other MSOs use some combination of Scientific Atlanta and Motorola equipment. We believe that Cablevision has largely resolved these technical issues and should be able to accelerate digital growth in 2002.

Exhibit 24

How'd They Do?

Digital Video Subscribers (In Thousands)

	MS 4Q01E	Actual 4Q01	Prior 2002E	Revised 2002E	Prior 2003E	Revised 2003E
Adelphia (1)	1,855	1,879	2,698	2,698	3,464	3,464
AT&T	3,501	3,475	4,337	4,477	5,000	5,215
Cablevision	28	17	145	145	466	466
Charter	2,150	2,145	2,780	2,780	3,308	3,308
Comcast	2,343	2,336	2,998	2,997	3,513	3,549
Cox	1,375	1,386	1,935	2,009	2,427	2,535
AOL Time Warner	2,976	2,999	4,352	4,254	5,615	5,441
Insight	262	258	336	370	440	494
Other	1,042	1,041	1,402	1,561	1,402	1,707
Total	15,532	15,535	20,983	21,291	25,635	26,177
Net Additions						
Adelphia (1)	173	197	819	819	766	765
AT&T	336	310	862	1,002	663	738
Cablevision	28	17	128	127	321	321
Charter	199	194	635	636	528	527
Comcast	221	214	662	661	515	532
Cox	147	158	549	623	492	526
AOL Time Warner	401	424	1,376	1,278	1,263	1,187
Insight	32	28	78	112	104	124
Other	107	106	361	520	0	146
Total	1,565	1,647	5,470	5,778	4,652	4,886

Source: Morgan Stanley Research Estimates

Updates During the Quarter

- **Adelphia:** Has launched S-VOD in its Cleveland systems and plans to launch the service in the entire PONY (Pennsylvania, Ohio, New York) ring. The company estimates that about 400,000 customers are currently VOD-enabled, about 51,000 of who are digital subscribers.
- **AOL Time Warner:** Time Warner has awarded contracts for VOD rollouts for 38 systems. Concurrent recently announced that it has agreements to deploy VOD in another five Time Warner markets, which cover 1.5 million basic subscribers and about 500,000 digital subscribers. This brings Concurrent's total to 15 Time Warner markets. Time Warner also announced that it will use nCUBE in its Los Angeles and New York markets to deploy VOD (as well as six other unannounced markets). SeaChange recently announced that it has won VOD deployment contracts in a total of 16 Time Warner markets. The VOD launch in Cincinnati includes HBO S-VOD at \$9.95 per month and content from the Food Network and Home & Garden Television on an a la carte basis.
- **AT&T Broadband:** Has launched VOD in Atlanta and Los Angeles. We believe the pending merger with Comcast has slowed its rollout of VOD and we don't expect this to change near-term.

- **Cablevision:** Launched its VOD service with its digital roll out at the end of last September. Initial data show high take rates on the product. Cablevision also offers S-VOD for no additional charge for those digital customers who subscribe to HBO, Starz, or Showtime.
- **Charter:** Has several trials of VOD. Has not yet launched a premium S-VOD service, but, in some areas, offers an S-VOD package of children's programming for \$9.95 per month. Charter has used Diva as its sole VOD equipment provider thus far, and we would expect it to select a second vendor in the near term.
- **Comcast:** The company recently finalized an agreement with TVN Entertainment Corp. (TVN) to deliver content in 11 markets. Comcast ended 2001 with 3 million VOD-enabled homes and expects to end 2002 with 5-6 million.
- **Cox:** The company expects to launch VOD commercially in seven markets by the end of 3Q02, representing 43% of homes passed. Expects to launch S-VOD in selected markets in 2002.
- **Insight:** Plans to launch S-VOD by the end of 2Q02. While pricing for S-VOD has not yet been determined, Insight does plan to charge for the service. As for VOD, Insight estimates that about 15% of its 950,000 VOD-enabled customers are using the VOD service. The company has about 350 titles available, but it is in discussions with TVN Entertainment Corp. to provide additional content. Like Charter, Insight has used Diva as its sole VOD-equipment provider thus far, and we would expect it to select a second vendor in the near term.

Updates on the Content Side

- In January, In Demand L.L.C. signed a deal with Dreamworks SKG that would allow In Demand to distribute Dreamworks's content on a VOD basis. Details of the agreement were not disclosed. In Demand also has deals with Columbia Tri-Star, Universal Pictures, and Artisan Entertainment. In addition to these studios, In Demand has struck content agreements with Hallmark Entertainment, ESPN, Courtroom Television Network, Comedy Central, Turner Network Television, and Cartoon Network.

Broadband Cable Television – April 5, 2002

Please see the important disclosures at the end of this report.

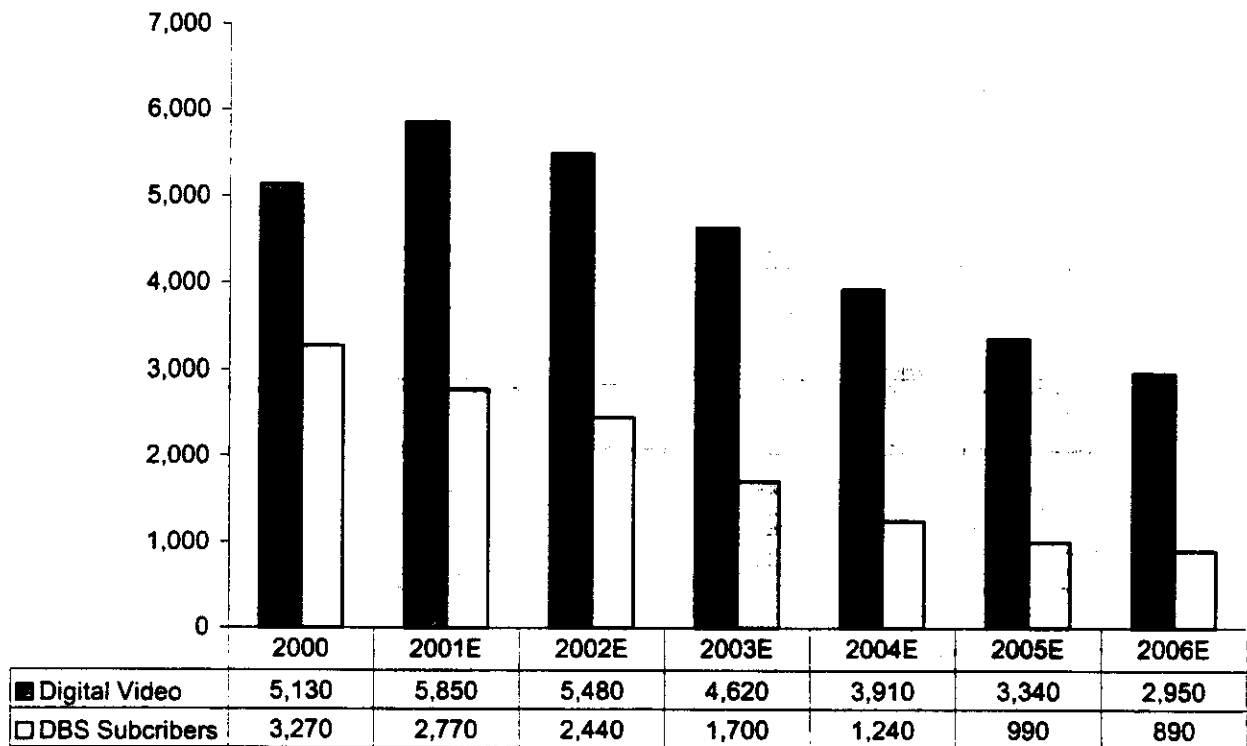
- MagRack currently provides VOD content to Cablevision and has about 22 niche magazines that range from automobiles to cooking.

Note: The following piece was written by Michael Lynch and Scott Coleman of the wireline networking equipment group in Morgan Stanley's Research Department.

Why VOD Now? What Has Changed? Two questions we expect investors to ask are, "why VOD now" and "what has changed" fundamentally that improves the prospect for widespread VOD deployments? There have been many stops and starts with VOD deployment. We believe that over the past two years the main barriers to VOD deployment have been largely eliminated, including:

- *Cost per stream has declined to the point where VOD makes sense economically for the MSOs.* The price per stream to deliver on-demand content has declined significantly in the past two years. We believe that the average cost per stream declined from \$600 in 2000 to around \$400 in 2001. We expect this cost to decline approximately 22% on a compound annual basis through 2006.
- *Critical mass of digital subscribers and set tops.* We estimate that as of year-end 2001 there were approximately 14.7 million digital cable subscribers in the US. By 2006, we estimate there will be 35 million digital cable subscribers (a 2001-2006 CAGR of 18%). We assume that new subscribers in 2001 take, on average, 1.25 digital set-top boxes (STBs) per home, and that, by 2006, this could grow to 1.7 STBs per home (we believe that MSOs are planning for multiple streams per home, but at a much lower multiple than STBs per home). We believe there is now a critical mass of digital subscribers and set tops over which MSOs can offer VOD as a way to leverage their investment in two-way digital network upgrades.
- *Content availability no longer a concern.* One of the primary concerns surrounding VOD has been content availability, particularly since VOD content in the past has been viewed solely as movies. Although new content must continually be made available for VOD to succeed, we believe this concern is unfounded for two reasons. First, six of the seven major movie studios have agreements to provide content for VOD, which leads us to believe that there should be a suitable amount of movie content available. We highlight that the take rates of VOD movie trials (about 2-3 per month on average) exceed what we believe is the average active subscriber rental rate at Blockbuster of about 1.5 rentals per month. A higher take rate for VOD could lead the studios to re-think some of their release windows. Second, the success of subscription VOD (S-VOD) leads us to conclude that non-movie content (sports, educational programming, children's programming, etc.) will also be made available for VOD service. Given the positive activity on the content front, we think the real challenge for the MSOs will be to find the right mix of content to maximize revenue.

Exhibit 25

Digital Broadcast Satellite (DBS) and Cable Television Industries: Annual Subscriber Additions


E= Morgan Stanley Research Estimates

Exhibit 26

Digital Video Subscriber Additions vs. DBS Subscriber Additions, Quarterly

In Thousands

Subscribers	As Reported							
	1Q01	2Q01	3Q01	4Q01	1Q02E	2Q02E	3Q02E	4Q02E
Adelphia	5,723	5,672	5,693	5,810	5,821	5,823	5,826	5,836
AT&T	15,873	14,440	13,750	13,560	13,587	13,594	13,601	13,628
Cablevision	2,969	2,999	2,989	3,008	3,004	3,035	3,024	3,042
Charter Communications	6,350	6,388	6,970	6,954	6,829	6,890	7,005	6,988
Comcast	7,733	8,307	8,437	8,471	8,503	8,512	8,520	8,552
Cox Communications	6,214	6,167	6,207	6,238	6,257	6,210	6,250	6,282
Insight Communications	1,285	1,270	1,276	1,284	1,289	1,290	1,291	1,297
AOL Time Warner	11,197	11,087	11,086	11,214	11,236	11,242	11,247	11,270
Other	12,220	13,282	13,254	13,316	13,523	13,503	13,383	13,449
Total Basic Subscribers	69,563	69,612	69,660	69,855	70,050	70,099	70,148	70,343
Additions	194	49	49	194	196	49	49	196

Digital Video Subscribers

In Thousands

Adelphia (1)	998	1,203	1,346	1,503	1,763	1,878	2,008	2,159
AT&T	3,125	3,116	3,165	3,475	3,729	3,937	4,177	4,477
Cablevision	0	0	0	17	40	59	92	145
Charter Communications	1,344	1,585	1,951	2,145	2,213	2,366	2,571	2,780
Comcast (1)	1,244	1,472	1,698	1,869	1,999	2,113	2,253	2,398
Cox Communications	961	1,071	1,228	1,386	1,539	1,667	1,833	2,009
Insight Communications	183	201	230	258	285	308	337	370
AOL Time Warner	1,924	2,260	2,575	2,999	3,296	3,556	3,887	4,254
Other	661	833	935	1,041	1,249	1,301	1,353	1,561
Total Digital Subscribers	10,439	11,742	13,127	14,692	16,112	17,185	18,511	20,152
Additions	1,617	1,302	1,386	1,563	1,419	1,073	1,326	1,641

DBS

DirectTV (including PrimeStar)	9,840	10,015	10,297	10,702	10,952	11,152	11,402	11,823
Echostar	5,720	6,070	6,430	6,830	7,130	7,380	7,680	8,004
Total DBS	15,560	16,085	16,727	17,532	18,082	18,532	19,082	19,828
Additions	800	525	642	805	550	450	550	746

Digital Video Additions

In Thousands

Adelphia (1)	274	205	143	157	260	114	130	151
AT&T	556	(9)	49	310	254	208	241	300
Cablevision	0	0	0	17	23	20	33	53
Charter Communications	274	241	360	194	68	155	205	210
Comcast (1)	161	228	226	171	130	114	140	144
Cox Communications	119	111	157	158	153	129	166	176
AOL Time Warner	360	336	315	424	297	260	332	367
Insight Communications	80	18	28	28	27	23	29	33
Other								
Total Digital Cable Additions	1,525	1,130	1,284	1,459	1,211	1,021	1,274	1,433

DBS Additions

DirectTV	340	175	282	405	250	200	250	421
Echostar	460	350	360	400	300	250	300	324
Total DBS Additions	800	525	642	805	550	450	550	746

E= Morgan Stanley Research Estimates

(1) Figures shown are adjusted to digital subscribers. Both ADLAC and CMCSK report digital set-top boxes. Assumes 1.25 boxes per subscriber

Broadband Cable Television - April 5, 2002

Please see the important disclosures at the end of this report.

Exhibit 27

Digital Video Subscriber Additions vs. DBS Subscriber Additions, Annual

In Thousands

Subscribers	Pro Forma		2002E	2003E	2004E	2005E	2006E
	2000	2001					
Adelphia	5,795	5,810	5,836	5,861	5,885	5,909	5,933
AT&T	13,702	13,560	13,628	13,696	13,764	13,833	13,902
Cablevision	2,960	3,008	3,042	3,077	3,112	3,148	3,184
Charter Communications	6,954	6,954	6,988	7,023	7,059	7,094	7,129
Comcast	8,387	8,471	8,552	8,632	8,711	8,789	8,866
Cox Communications	6,193	6,238	6,282	6,326	6,370	6,414	6,459
Insight Communications	1,279	1,284	1,297	1,309	1,321	1,333	1,345
AOL Time Warner	11,158	11,214	11,270	11,325	11,379	11,431	11,483
Other	12,942	13,316	13,383	13,450	13,517	13,585	13,652
Total Basic Subscribers	69,369	69,855	70,278	70,698	71,117	71,536	71,954
Additions	831	486	423	421	419	419	418

Digital Video Subscribers

In Thousands

Adelphia (1)	723	1,503	2,159	2,771	3,267	3,597	3,809
AT&T	2,430	3,475	4,477	5,215	5,879	6,454	6,953
Cablevision	0	17	145	466	700	948	1,243
Charter Communications	1,178	2,145	2,780	3,308	3,721	4,127	4,549
Comcast (1)	1,216	1,869	2,398	2,839	3,239	3,570	3,852
Cox Communications	842	1,386	2,009	2,535	3,010	3,427	3,798
Insight Communications	152	258	370	494	642	796	900
AOL Time Warner	1,564	2,976	4,254	5,441	6,263	6,930	7,495
Other	718	1,041	1,561	1,707	1,962	2,179	2,374
Total Digital Subscribers	8,823	14,670	20,152	24,774	28,684	32,028	34,973
Additions	5,132	5,847	5,482	4,622	3,910	3,344	2,945

DBS

DirecTV (including PrimeStar)	9,500	10,702	11,823	12,553	13,050	13,447	13,804
Echostar	5,260	6,830	8,148	9,120	9,866	10,462	10,998

Total DBS	14,760	17,532	19,971	21,673	22,915	23,909	24,802
Additions	3,271	2,772	2,439	1,702	1,242	993	893

Digital Video Additions

In Thousands

Adelphia (1)	489	780	655	612	496	331	212
AT&T	1,014	1,045	1,002	738	664	575	498
Cablevision	0	17	127	321	235	247	296
Charter Communications	1,022	967	636	527	415	406	422
Comcast (1)	772	653	529	441	400	331	282
Cox Communications	491	544	623	526	475	417	371
AOL Time Warner	1,154	1,412	1,278	1,187	823	666	565
Insight Communications	71	106	112	124	148	154	104
Other	118	323	520	146	256	216	195
Total Digital Cable Additions	5,132	5,847	5,482	4,622	3,910	3,344	2,945

DBS Additions

DirecTV	1,421	1,202	1,121	729	497	397	357
Echostar	1,850	1,570	1,318	972	745	596	536
Total DBS Additions	3,271	2,772	2,439	1,702	1,242	993	893

A= Actual, E= Morgan Stanley Research Estimates

(1) Figures shown are adjusted to digital subscribers. Both ADLAC and CMCSK report digital set-top boxes. Assume 1.25 boxes per subscriber

Broadband Cable Television – April 5, 2002

Please see the important disclosures at the end of this report.

Exhibit 28

VOD Subscriber Forecast, 2001-2006E

In Thousands

	Pro Forma					
	2001	2002E	2003E	2004E	2005E	2006E
Digital Homes Passed						
Adelphia	9,549	9,692	9,838	9,985	10,135	10,287
AT&T	23,337	24,922	25,296	25,676	26,061	26,452
Cablevision	550	4,420	4,486	4,553	4,622	4,691
Charter Communications	10,638	11,249	11,437	11,628	11,822	12,019
Comcast	13,596	13,864	14,072	14,283	14,497	14,715
Cox Communications	9,258	9,424	9,565	9,709	9,854	10,002
Insight Communications	1,144	2,170	2,202	2,233	2,269	2,303
AOL Time Warner	18,266	18,540	18,818	19,100	19,387	19,678
Other	7,500	7,500	7,500	7,500	7,500	7,500
Total	93,839	101,781	103,214	104,669	106,146	107,646
<i>Top 8 as % of Total</i>	<i>92%</i>	<i>93%</i>	<i>93%</i>	<i>93%</i>	<i>93%</i>	<i>93%</i>
Digital Video Subscribers						
Adelphia	1,503	2,159	2,771	3,267	3,597	3,809
AT&T	3,475	4,477	5,215	5,879	6,454	6,933
Cablevision	17	145	466	700	948	1,243
Charter Communications	2,145	2,780	3,308	3,721	4,127	4,549
Comcast	1,869	2,398	2,839	3,239	3,570	3,852
Cox Communications	1,386	2,009	2,535	3,010	3,427	3,798
Insight Communications	258	370	494	642	796	900
AOL Time Warner	2,976	4,254	5,441	6,263	6,930	7,495
Other	1,041	1,561	1,707	1,962	2,179	2,374
Total	14,670	20,152	24,774	28,684	32,028	34,973
<i>Top 8 as % of Total</i>	<i>93%</i>	<i>92%</i>	<i>93%</i>	<i>93%</i>	<i>93%</i>	<i>93%</i>
S-VOD Subscribers						
Adelphia	80	110	1,110	1,960	2,880	3,810
AT&T	0	350	1,560	3,530	5,810	6,950
Cablevision	20	140	470	700	950	1,240
Charter Communications	50	480	1,650	2,980	4,130	4,550
Comcast	0	430	2,130	2,920	3,570	3,850
Cox Communications	0	0	1,520	2,410	3,430	3,800
Insight Communications	0	40	490	640	800	900
AOL Time Warner	150	610	3,260	5,010	6,930	7,490
Other	0	0	170	590	1,090	1,660
Total	300	2,160	12,360	20,740	29,590	34,250
S-VOD Penetration of Digital Subs						
Adelphia	5.0%	5.0%	40.0%	60.0%	80.0%	100.0%
AT&T	0.0%	7.7%	30.0%	60.0%	90.0%	100.0%
Cablevision	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Charter Communications	2.5%	17.3%	50.0%	80.0%	100.0%	100.0%
Comcast	0.0%	18.0%	75.0%	90.0%	100.0%	100.0%
Cox Communications	0.0%	0.0%	60.0%	80.0%	100.0%	100.0%
Insight Communications	0.0%	10.0%	100.0%	100.0%	100.0%	100.0%
AOL Time Warner	5.0%	14.3%	60.0%	80.0%	100.0%	100.0%
Other	0.0%	0.0%	10.0%	30.0%	50.0%	70.0%
Total	2.0%	10.7%	49.9%	72.3%	92.4%	97.9%

E= Morgan Stanley Research Estimates

Broadband Cable Television – April 5, 2002

Please see the important disclosures at the end of this report.

Exhibit 29

S-VOD Subscriber Forecast

In Thousands

Subscribers	Pro Forma		2002E	2003E	2004E	2005E	2006E
	2000	2001					
Adelphia	5,795	5,837	5,895	5,951	6,006	6,060	6,113
AT&T (1)	13,702	13,560	13,628	13,696	13,764	13,833	13,902
Cablevision	2,960	3,008	3,042	3,077	3,112	3,148	3,184
Charter Communications	6,954	6,960	6,995	7,030	7,065	7,100	7,136
Comcast	8,387	8,471	8,552	8,632	8,711	8,789	8,866
Cox Communications	6,193	6,238	6,282	6,326	6,370	6,414	6,459
Insight Communications	1,279	1,284	1,297	1,309	1,321	1,333	1,345
AOL Time Warner	11,158	11,214	11,270	11,325	11,379	11,431	11,483
Other	12,942	13,283	13,350	13,417	13,484	13,551	13,619
Total Basic Subscribers	69,369	69,855	70,310	70,762	71,212	71,660	72,107
Additions	831	486	455	452	450	448	447

Digital Video Subscribers

In Thousands

Adelphia (2)	723	1,484	1,914	2,368	2,802	3,179	3,495
AT&T (1)	2,430	3,475	4,477	5,215	5,879	6,454	6,953
Cablevision	0	17	145	466	700	948	1,243
Charter Communications	1,178	2,145	2,780	3,308	3,721	4,127	4,549
Comcast (2)	1,216	1,869	2,398	2,839	3,239	3,570	3,852
Cox Communications	842	1,386	2,009	2,535	3,010	3,427	3,798
Insight Communications	152	258	370	543	697	865	992
AOL Time Warner	1,564	2,976	4,254	5,441	6,263	6,930	7,495
Other	718	1,041	1,561	1,707	1,962	2,179	2,374
Total Digital Subscribers	8,823	14,650	19,908	24,420	28,274	31,679	34,752
Additions	5,132	5,828	5,257	4,513	3,854	3,405	3,073

DBS

DirectTV (including PrimeStar)	9,500	10,702	11,823	12,553	13,050	13,447	13,804
Echostar	5,260	6,830	8,148	9,120	9,866	10,462	10,998
Total DBS	14,760	17,532	19,971	21,673	22,915	23,909	24,802
Additions	3,271	2,772	2,439	1,702	1,242	993	893

Digital Video Additions

In Thousands

Adelphia (2)	489	760	431	454	434	377	316
AT&T (1)	1,014	1,045	1,002	738	664	575	498
Cablevision	0	17	127	321	235	247	296
Charter Communications	1,022	967	636	527	413	406	422
Comcast (2)	772	653	529	441	400	331	282
Cox Communications	491	544	623	526	475	417	371
AOL Time Warner	1,154	1,412	1,278	1,187	823	666	565
Insight Communications	71	106	112	173	154	168	127
Other	118	323	520	146	256	216	195
Total Digital Cable Additions	5,132	5,828	5,257	4,513	3,854	3,405	3,073

DBS Additions

DirectTV	1,421	1,202	1,121	729	497	397	357
Echostar	1,850	1,570	1,318	972	745	596	536
Total DBS Additions	3,271	2,772	2,439	1,702	1,242	993	893

E= Morgan Stanley Research Estimates

Broadband Cable Television – April 5, 2002

Please see the important disclosures at the end of this report.

Exhibit 30

North American VOD Rollout

VOD Vendor	MSO	Market	Platform	Est. Start	Basic Subs	Current Status
Concurrent	Blue Ridge Comm.	NE PA	SFA	1Q02	170,000	Commercial Deployment
	Comcast	Albuquerque, NM	MOT	1H02	222,000	Commercial Deployment
		Lower Merion/Willow Grove, PA	MOT	1H02	60,000	Commercial Deployment
		Mobile, AL	MOT	1H02	69,520	Commercial Deployment
		Savannah, GA	MOT	1H02	110,051	Commercial Deployment
		4 undisclosed	SFA and MOT	2002	443,429	Announced
	Congeco	Ontario and Quebec	MOT	1H02	775,000	Commercial Deployment
	Cox	San Diego, CA	SFA	1Q02	528,000	Commercial Deployment
		Phoenix, AZ	SFA	1Q02	612,000	Commercial Deployment
		Hampton Roads, VA	MOT	1Q02	780,500	Commercial Deployment
	Mediacom	Selected Locations Nationwide	MOT	4Q01	NA	Announced
	Time Warner	Orlando, FL	SFA	2H01	477,000	Announced
		Oahu HI	SFA	4Q99	250,000	Commercial Deployment
		Tampa/St. Pete, FL	SFA	2Q01	925,000	Commercial Deployment
		Houston, TX	MOT	2H01	680,000	Announced
		Columbia, SC	SFA	3Q01	328,000	Trial
		Myrtle Beach, SC	SFA	2H01	100,000	Announced
		Sumerville, SC	SFA	2H01	26,600	Announced
		Cincinnati, OH	SFA	3Q01	332,000	Trial
		7 Undisclosed	SFA		1,750,000	Announced
	Undisclosed	2 Undisclosed	NA	NA	NA	
Total:					8,807,500	
Diva	AT&T	Atlanta, GA	MOT	4Q00	620,000	Commercial Deployment
		Los Angeles, CA	MOT	4Q00	480,000	Commercial Deployment
		Pittsburgh, PA	MOT	2H01	610,000	Planned Deployment
		San Francisco, CA	MOT	2H01	70,000	Planned Deployment
	Chambers	Edmonds, WA	MOT	4Q99	21,000	Trial
		Novato, CA	MOT	2Q99	17,500	Trial
	Charter	Ft. Worth	SFA	2Q01	156,000	Commercial Deployment
		St. Louis	MOT	2Q01	477,000	Commercial Deployment
		Pasadena, CA	SFA	4Q00		Commercial Deployment
		Burbank, CA	SFA	3Q01		Commercial Deployment
		Glendale, CA	SFA	3Q01		Commercial Deployment
		Monterey Park, CA	SFA	3Q01		Commercial Deployment
		Long Beach, CA	SFA	3Q01		Commercial Deployment
		LA Total:			425,000	
		Atlanta, GA	MOT	1Q00	153,800	Commercial Deployment
		Greenville-Spartanburg, SC	SFA	3Q01	230,000	Commercial Deployment
		Hickory, NC	MOT	3Q01	118,000	Commercial Deployment
		Slidell, LA	MOT	3Q01		Commercial Deployment
		Newtown, CT		1Q02	56,000	Commercial Deployment
		Birmingham, AL	SFA	4Q01	120,000	Commercial Deployment
	Insight	Rockford, IL	MOT	4Q99	78,100	Commercial Deployment
		Columbus, OH	MOT	1Q01	86,000	Commercial Deployment
		Evansville, IN	MOT	1Q01	59,400	Commercial Deployment
		Louisville, KY	MOT	3Q01	256,900	Commercial Deployment
		Lexington, KY	MOT	3Q01	85,000	Commercial Deployment
		Champaign-Urbana, IL	MOT	4Q01	51,400	Commercial Deployment
		Covington, KY	MOT	4Q01	81,000	Commercial Deployment
		Bloomington, IN	MOT	4Q01	79,000	Commercial Deployment
		Anderson, IN	MOT	4Q01	112,900	Commercial Deployment
		Lafayette, IN	MOT	4Q01	40,000	Commercial Deployment
		Kokomo, IN	MOT	4Q01	29,000	Commercial Deployment
Total:					4,491,780	

E = Morgan Stanley Research Estimates

Exhibit 31

North American VOD Rollout (continued)

VOD Vendor	MSO	Market	Platform	Est. Start	Basic Subs	Current Status
nCube	Time Warner	Los Angeles, CA	SFA	2002	363,000	Commercial Deployment
		Green Bay, WI	SFA			Unannounced
		Milwaukee, WI	SFA			Unannounced
		Minneapolis, MN	SFA			Unannounced
		Memphis, TN	SFA			Unannounced
		Manhattan, NY	SFA			Unannounced
		2 Undisclosed	SFA			Unannounced
		Time Warner Total			3,000,000	
	WINfirst	Sacramento, CA		4Q01		Commercial Deployment
	Seren Innovations	Concord, CA	SFA	2000		Commercial Deployment
		St. Cloud, MN	SFA	2000		Commercial Deployment
	Shaw Cablesystems	Calgary, Canada	MOT	2002		Commercial Deployment
		Total:			3,363,000	
SeeChange	Adelphia	PONY Ring (PA-OH-NY)	SFA	4Q01	1,300,000	Commercial Deployment
		Cleveland, OH		4Q01	577,000	Commercial Deployment
	Cablevision	NY Metro	Sony/Harmonic	4Q01	2,900,000	Commercial Deployment
	Comcast	Alexandria, VA	SFA	4Q01		Commercial Deployment
		Baltimore, MD	MOT	4Q01		Commercial Deployment
		Cherry Hill, NJ	MOT	4Q01		Commercial Deployment
		Union, NJ		4Q01		Commercial Deployment
		Howard Co., MD		4Q01		Commercial Deployment
		Monmouth Co., NJ		4Q01		Commercial Deployment
		Comcast Total:			1,132,000	
	Time Warner	Austin, TX	SFA	4Q00	304,000	Commercial Deployment
		14 Undisclosed	SFA and MOT	1Q02	3,138,000	Unannounced
	Unannounced	Unannounced	NA		NA	
		Total:			9,361,000	

E = Morgan Stanley Research Estimates

Exhibit 32

Total Multichannel Video Forecast

(In Thousands)

	1998	1999	2000	2001	2002E	2003E	2004E	2005E	2006E
Total TV Households	103,094	105,443	106,721	107,468	108,221	109,705	111,213	112,732	114,264
Total Basic Cable Subscribers	67,011	68,538	69,369	69,855	70,278	70,698	71,117	71,536	71,954
Total DBS Subscribers	8,694	11,489	14,760	17,532	19,971	21,673	22,915	23,909	24,802
% Overlap	20%	20%	20%	20%	20%	20%	20%	20%	20%
Total Overlap	(1,739)	(2,298)	(2,952)	(3,506)	(3,994)	(4,335)	(4,583)	(4,782)	(4,960)
Total Multichannel Subs	73,966	77,729	81,177	83,880	86,255	88,037	89,450	90,663	91,796
Growth YoY%									
Total TV HH	3.1%	2.3%	1.2%	0.7%	0.7%	1.4%	1.4%	1.4%	1.4%
Total Basic Cable	1.6%	2.3%	1.2%	0.7%	0.6%	0.6%	0.6%	0.6%	0.6%
Total DBS Subscribers	38.3%	32.1%	28.5%	18.8%	13.9%	8.5%	5.7%	4.3%	3.7%
Total Overlap	38.3%	32.1%	28.5%	18.8%	13.9%	8.5%	5.7%	4.3%	3.7%
Total Multichannel Subs	4.2%	5.1%	4.4%	3.3%	2.8%	2.1%	1.6%	1.4%	1.2%
Penetration % of Total HH									
Total TV HH	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Total Basic Cable	65.0%	65.0%	65.0%	65.0%	64.9%	64.4%	63.9%	63.5%	63.0%
Total DBS Subscribers	8.4%	10.9%	13.8%	16.3%	18.5%	19.8%	20.6%	21.2%	21.7%
Total Overlap	-1.7%	-2.2%	-2.8%	-3.3%	-3.7%	-4.0%	-4.1%	-4.2%	-4.3%
Total Multichannel Subs	71.7%	73.7%	76.1%	78.1%	79.7%	80.2%	80.4%	80.4%	80.3%
Additions									
Total TV HH	3,094	2,349	1,278	747	752	1,484	1,508	1,520	1,532
Total Basic Cable	1,082	1,527	831	486	423	421	419	419	418
Total DBS Subscribers	2,407	2,795	3,271	2,772	2,439	1,702	1,242	993	893
Total Overlap	(481)	(559)	(654)	(554)	(488)	(340)	(248)	(199)	(179)
Total Multichannel Subs	3,007	3,763	3,448	2,703	2,375	1,782	1,413	1,213	1,133

Source: NCTA, Morgan Stanley Research Estimates

Exhibit 33

Comparative Analysis of DBS and Cable Packages

	DIRECTV	DISH	Adelphia	AT&T (1)	Charter	Comcast	Cox (2)	Insight (3)	Time Warner (4)
Package Name	Choice***	Top 50**	Limited Basic	Basic Service	Basic Service	Limited Basic	Basic Service	Basic Service	Basic Service
Package Price	\$27.98*	\$28.98*	NA	\$11.90	\$14.50	NA	\$11.06	NA	\$13.62
Analog Video Channels	—	—	—	27	30	—	25	23	27
Digital Video Channels	54	68	—	—	—	—	—	—	—
Total	54	68	—	27	30	—	25	23	27
Cost per Video Channel	\$0.52	\$0.43	—	0.43	0.48	—	0.45	NA	0.50
Package Name	Total Choice	Top 100	Standard	Standard	Standard	Standard	Standard	Standard	Standard
Package Price	\$37.99*	\$37.98*	\$33.00	\$35.71	\$37.50	\$35.00	\$37.13	\$37.00	\$39.30
Analog Video Channels	—	—	72	69	70	73	72	63	72
Digital Video Channels	83	112	—	—	—	—	—	—	—
Total	83	119	72	69	70	73	72	63	72
Cost per Video Channel	\$0.46	\$0.32	0.46	0.52	0.54	0.48	0.52	0.59	0.55
Package Name	Total Choice	Top 150	Basic Digital	Digital Bronze	Basic Digital	Basic Digital	Basic Digital	Basic Digital	Basic Digital
Package Price	\$51.99*	\$46.98*	\$43.00	\$44.87	\$47.95	\$55.00	\$49.59	\$51.49	\$50.65
Analog Video Channels	—	—	72	69	70	73	72	63	72
Digital Video Channels	110	151	29	19	32	37	29	52	51
Total	110	151	101	88	102	110	101	115	123
Cost per Video Channel	\$0.47	\$0.31	\$0.43	\$0.51	\$0.47	\$0.50	\$0.49	\$0.45	\$0.41
Package Name	Total Choice	America's Everything	Digital + All Premiums	Digital Platinum	Digital MVP	Digital Platinum	Digital Deluxe	Digital Deluxe	Digital Premium
Package Price	\$85.99*	\$78.98*	\$68.00	\$78.38	\$67.95	\$85.00	\$81.92	\$71.49	\$78.75
Analog Video Channels	—	—	72	69	70	73	72	63	72
Digital Video Channels	153	185	52	67	62	83	70	69	97
Total	153	185	131	136	132	156	142	132	168
Cost per Video Channel	\$0.56	\$0.43	\$0.52	\$0.58	\$0.51	\$0.54	\$0.58	\$0.54	\$0.47

* Includes the cost of local programming. We have included 15 local channels per market, however, in the must carry environment, the number would vary by market.

** Formerly Top 40

(1) AT&T Programming is a weighted average of the different offerings available in the Bay Area, CA, Denver, CO, Dallas, TX and Portland, OR.

(2) Cox Programming is a weighted average of the different offerings available in Orange County, Hampton Roads, New Orleans, San Diego and Phoenix

(3) Insight programming based on a weighted average of offerings available in Louisville, KY and Bloomington, IN.

(4) Time Warner Programming is a weighted average of the different offerings available in New York, Houston, Tampa, Raleigh and Charlotte.

Source: Company Data